

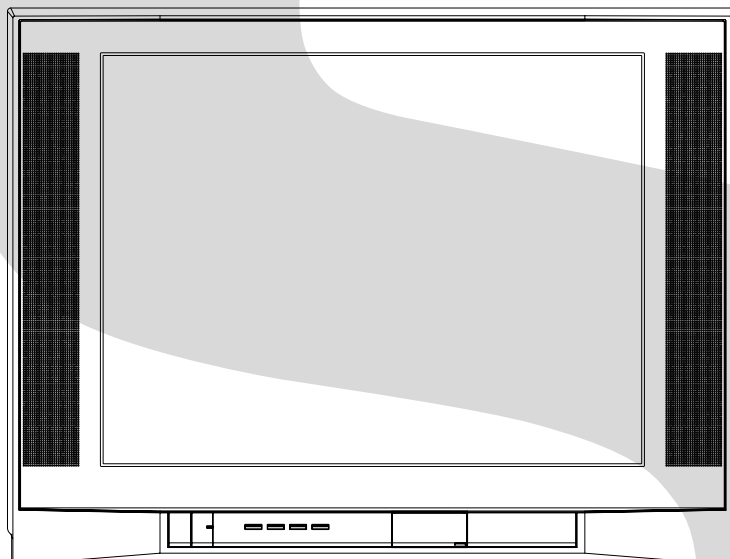
# TOSHIBA

FILE NO. 140-200310

## SERVICE MANUAL

## COLOR TELEVISION

# 24AF43



## SERVICING NOTICES ON CHECKING

### 1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

### 2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

### 3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

### 4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

### 5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

### 6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

### 7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

#### (INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

#### **[Note 1]**

If you have not the 500V insulation resistance meter, use a Tester.

#### **[Note 2]**

External exposure metal: Antenna terminal  
Earphone jack

## HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

#### 1. MODEL NUMBER and VERSION LETTER

The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.

#### 2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

## IMPORTANT

Inferior silicon grease can damage IC's and transistors.

When replacing an IC's or transistors, use only specified silicon grease (YG6260M).

Remove all old silicon before applying new silicon.

# TABLE OF CONTENTS

|  |            |
|--|------------|
| <b>SERVICING NOTICES ON CHECKING</b> .....           | A1-1       |
| <b>HOW TO ORDER PARTS</b> .....                      | A1-1       |
| <b>IMPORTANT</b> .....                               | A1-1       |
| <b>TABLE OF CONTENTS</b> .....                       | A2-1       |
| <b>GENERAL SPECIFICATIONS</b> .....                  | A3-1~A3-5  |
| <b>DISASSEMBLY INSTRUCTIONS</b>                      |            |
| 1. REMOVAL OF ANODE CAP .....                        | B1-1       |
| 2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC ..... | B2-1, B2-2 |
| <b>SERVICE MODE LIST</b> .....                       | C1-1       |
| <b>CONFIRMATION OF HOURS USED</b> .....              | C1-1       |
| <b>WHEN REPLACING EEPROM (MEMORY) IC</b> .....       | C1-1       |
| <b>ELECTRICAL ADJUSTMENTS</b> .....                  | D-1~D-5    |
| <b>BLOCK DIAGRAMS</b> .....                          | E-1, E-2   |
| <b>PRINTED CIRCUIT BOARDS</b>                        |            |
| MAIN/CRT .....                                       | F-1~F-4    |
| CRT/VM COIL .....                                    | F-5        |
| <b>SCHEMATIC DIAGRAMS</b>                            |            |
| MICON .....  | G-1, G-2   |
| CHROMA .....   | G-3, G-4   |
| DEFLECTION .....                                     | G-5, G-6   |
| POWER .....  | G-7, G-8   |
| SOUND .....  | G-9, G-10  |
| TUNER/STEREO .....                                   | G-11, G-12 |
| AV .....   | G-13, G-14 |
| COMB/FILTER .....                                    | G-15, G-16 |
| CRT .....  | G-17, G-18 |
| <b>WAVEFORMS</b> .....                               | H-1, H-2   |
| <b>MECHANICAL EXPLODED VIEWS</b> .....               | I-1        |
| <b>MECHANICAL REPLACEMENT PARTS LIST</b> .....       | J1-1       |
| <b>ELECTRICAL REPLACEMENT PARTS LIST</b> .....       | J2-1~J2-5  |

## GENERAL SPECIFICATIONS

|                      |                    |                        |                           |   |  |
|----------------------|--------------------|------------------------|---------------------------|---|--|
| G-1                  | TV System          | CRT                    | CRT Size / Visual Size    | 24 inch / 600mmV                                |  |
|                      |                    |                        | CRT Type                  | Flat  |  |
|                      |                    |                        | Deflection                | 101 degree                                      |  |
|                      |                    |                        | Magnetic Field            | BV/BH   |  |
|                      |                    | Color System           |                           | +0.45G/0.18G                                    |  |
|                      |                    | Speaker                |                           | NTSC  |  |
|                      |                    |                        |                           | 2 Speaker                                       |  |
|                      |                    |                        | Position                  | Front Side                                      |  |
|                      |                    |                        | Size                      | 2 x 4.7 Inch                                    |  |
|                      |                    | Sound Output           | Impedance                 | 8 ohm   |  |
| MAX                  | 5.0+5.0 W          |                        |                           |   |  |
| G-2                  | Tuning System      | Broadcasting System    | 10%(Typical)              | 4.0+4.0 W                                       |  |
|                      |                    |                        | NTSC3.58+4.43 /PAL60Hz    |   |  |
|                      |                    |                        | No                        |   |  |
|                      |                    |                        | US System M               |   |  |
|                      |                    | Tuner and Receive CH   | System                    | 1Tuner  |  |
|                      |                    |                        | Destination               | USA(W/ CATV)                                    |  |
|                      |                    |                        | Tuning System             | F-Synth   |  |
|                      |                    |                        | Input Impedance           | VHF/UHF 75 ohm                                  |  |
|                      |                    | Intermediate Frequency | CH Coverage               | 2 - 69, 4A, A-5 - A-1, A - I, J - W, W+1 - W+84 |  |
|                      |                    |                        | Picture(FP)               | 45.75MHz  |  |
| Sound(FS)            | 41.25MHz           |                        |                           |   |  |
| FP-FS                | 4.50MHz            |                        |                           |   |  |
| Preset CH            |                    | No                     |                           |   |  |
| Stereo/Dual TV Sound |                    | Yes                    |                           |   |  |
| Tuner Sound Muting   |                    | Yes                    |                           |   |  |
| G-3                  | Power              | Power Source           | AC                        | 120V AC 60Hz                                    |  |
|                      |                    |                        | DC                        |   |  |
|                      |                    | Power Consumption      | at AC                     |   |  |
|                      |                    |                        | 125 W at AC 120 V 60 Hz   |   |  |
|                      |                    |                        | 3 W at AC 120 V 60 Hz     |   |  |
| G-4                  | Regulation         | Protector              | Stand by (at AC) Per Year | -- kWh/Year                                     |  |
|                      |                    |                        | Power Fuse                | Yes   |  |
|                      |                    |                        | Safety                    | UL/CSA  |  |
|                      |                    |                        | Radiation                 | FCC/IC  |  |
| G-5                  | Temperature        | X-Radiation            |                           | DHHS/HWC  |  |
|                      |                    | Operation              | +5oC ~ +40oC              |   |  |
| G-6                  | Operating Humidity | Storage                |                           | -20oC ~ +60oC                                   |  |
|                      |                    |                        |                           | Less than 80% RH                                |  |

## GENERAL SPECIFICATIONS

|     |                   |                                   |                               |                              |
|-----|-------------------|-----------------------------------|-------------------------------|------------------------------|
| G-7 | On Screen Display | Menu                              |                               | Yes                          |
|     |                   | Menu Type                         |                               | Icon                         |
|     |                   | Picture                           |                               | Yes                          |
|     |                   | Contrast                          |                               | Yes                          |
|     |                   | Brightness                        |                               | Yes                          |
|     |                   | Color                             |                               | Yes                          |
|     |                   | Tint                              |                               | Yes                          |
|     |                   | Sharpness                         |                               | Yes                          |
|     |                   | Sound                             |                               | Yes                          |
|     |                   | Bass                              |                               | Yes                          |
|     |                   | Treble                            |                               | Yes                          |
|     |                   | Balance                           |                               | Yes                          |
|     |                   | BBE On/Off                        |                               | Yes                          |
|     |                   | Stable Sound On/Off               |                               | Yes                          |
|     |                   | Surround On/Off                   |                               | Yes                          |
|     |                   | Set Up                            |                               | Yes                          |
|     |                   | TV/CATV                           |                               | Yes                          |
|     |                   | Auto CH Memory                    |                               | Yes                          |
|     |                   | Add/ Delete                       |                               | Yes                          |
|     |                   | Option                            |                               | Yes                          |
|     |                   | Language                          |                               | Yes                          |
|     |                   | CH Label                          |                               | Yes                          |
|     |                   | Favorite CH                       |                               | Yes                          |
|     |                   | V-Chip                            |                               | Yes                          |
|     |                   | Lock                              |                               | Yes                          |
|     |                   | On/Off Timer                      |                               | Yes                          |
|     |                   | Color Stream DVD/DTV              |                               | Yes                          |
|     |                   | Control Level                     |                               | Yes                          |
|     |                   | Volume                            |                               | Yes                          |
|     |                   | Brightness                        |                               | Yes                          |
|     |                   | Contrast                          |                               | Yes                          |
|     |                   | Color                             |                               | Yes                          |
|     |                   | Tint (NTSC Only)                  |                               | Yes                          |
|     |                   | Sharpness                         |                               | Yes                          |
|     |                   | Tuning                            |                               | No                           |
|     |                   | Bass                              |                               | Yes                          |
|     |                   | Treble                            |                               | Yes                          |
|     |                   | Balance                           |                               | Yes                          |
|     |                   | Back Light                        |                               | No                           |
|     |                   | Stereo,Audio Output,SAP           |                               | Yes                          |
|     |                   | Video                             |                               | Yes                          |
|     |                   | Color Stream                      |                               | Yes                          |
|     |                   | Channel(TV/Cable)                 |                               | Yes                          |
|     |                   | CH Label                          |                               | Yes                          |
|     |                   | Game Timer                        |                               | Yes                          |
|     |                   | Sleep Timer                       |                               | Yes                          |
|     |                   | Sound Mute                        |                               | Yes                          |
|     |                   | V-chip Rating                     |                               | Yes                          |
|     |                   | 16: 9                             |                               | Yes                          |
| G-8 | OSD Language      |                                   |                               | English    French    Spanish |
| G-9 | Clock and Timer   | Sleep Timer                       | Max Time                      | 120 Min                      |
|     |                   |                                   | Step                          | 10 Min                       |
|     |                   | On/Off Timer                      | Program(On Timer / Off Timer) | Yes                          |
|     |                   | Wake Up Timer                     |                               | No                           |
|     |                   | Timer Back-up (at Power Off Mode) | more than                     | --    Min    Sec             |

## GENERAL SPECIFICATIONS

|      |                |                        |              |
|------|----------------|------------------------|--------------|
| G-10 | Remote Control | Unit                   | RC-GF        |
|      |                | Glow in Dark Remocon   | Yes          |
|      |                | Format                 | Toshiba      |
|      |                | Custom Code            | TV:40-BFh    |
|      |                | Power Source           | 3V           |
|      |                | Voltage(D.C)           | UM-4 x 2 pcs |
|      |                | UM size x pcs          |              |
|      |                | Total Keys             | 49 Keys      |
|      |                | Keys                   |              |
|      |                | Power                  | Yes          |
|      |                | 1                      | Yes          |
|      |                | 2                      | Yes          |
|      |                | 3                      | Yes          |
|      |                | 4                      | Yes          |
|      |                | 5                      | Yes          |
|      |                | 6                      | Yes          |
|      |                | 7                      | Yes          |
|      |                | 8                      | Yes          |
|      |                | 9                      | Yes          |
|      |                | 0                      | Yes          |
|      |                | 100                    | Yes          |
|      |                | CH Up/+                | Yes          |
|      |                | CH Down/-              | Yes          |
|      |                | Volume Up/+            | Yes          |
|      |                | Volume Down/-          | Yes          |
|      |                | C.C.(TV/Caption/Text)  | Yes          |
|      |                | CH1/CH2                | Yes          |
|      |                | TV/Video(Input Select) | Yes          |
|      |                | CH RTN(Quick View)     | Yes          |
|      |                | SLEEP                  | Yes          |
|      |                | RECALL(Call)           | Yes          |
|      |                | Reset                  | Yes          |
|      |                | Menu/Enter             | Yes          |
|      |                | Mute                   | Yes          |
|      |                | Exit                   | Yes          |
|      |                | MTS(Audio Select)      | Yes          |
|      |                | Fav. Up                | Yes          |
|      |                | Fav. Down              | Yes          |
|      |                | 16: 9                  | Yes          |
|      |                | Multi Brand Keys       |              |
|      |                | CH Up(VCR)             | Yes          |
|      |                | CH Down(VCR)           | Yes          |
|      |                | Pause/Still            | Yes          |
|      |                | TV/VCR(VCR)            | Yes          |
|      |                | FF                     | Yes          |
|      |                | Rew                    | Yes          |
|      |                | Rec                    | Yes          |
|      |                | Play                   | Yes          |
|      |                | Stop                   | Yes          |
|      |                | TV                     | Yes          |
|      |                | VCR                    | Yes          |
|      |                | Cable                  | Yes          |
|      |                | DVD                    | Yes          |
|      |                | CODE                   | Yes          |
|      |                | DVD MENU <             | Yes          |
|      |                | DVD MENU >             | Yes          |
|      |                | DVD CLEAR              | Yes          |
|      |                | TOP MENU               | Yes          |
|      |                | DVD MENU               | Yes          |

## GENERAL SPECIFICATIONS

|      |             |                                   |                   |
|------|-------------|-----------------------------------|-------------------|
| G-11 | Features    | Auto Degauss                      | Yes               |
|      |             | Auto Shut Off                     | Yes               |
|      |             | Canal+                            | No                |
|      |             | CATV                              | Yes               |
|      |             | Anti-theft                        | No                |
|      |             | Rental                            | No                |
|      |             | Memory(Last CH)                   | Yes               |
|      |             | Memory(Last Volume)               | Yes               |
|      |             | V-Chip                            | Yes               |
|      |             | Type                              | USA, Toshiba Type |
|      |             | BBE                               | Yes               |
|      |             | Auto Search                       | No                |
|      |             | CH Allocation                     | No                |
|      |             | SAP                               | Yes               |
|      |             | Just Clock Function               | No                |
|      |             | CH Label                          | Yes               |
|      |             | VM Circuit                        | Yes               |
|      |             | Full OSD                          | No                |
|      |             | Premiere                          | No                |
|      |             | Comb Filter                       | Yes               |
|      |             |                                   | 3 Lines           |
|      |             | Auto CH Memory                    | Yes               |
|      |             | Hotel Lock                        | No                |
|      |             | Closed Caption                    | Yes               |
|      |             | Stable Sound                      | Yes               |
|      |             | FBT Leak Test Protect             | Yes               |
|      |             | CH Lock                           | Yes               |
|      |             | Video Lock                        | Yes               |
|      |             | Game Timer (Max Time:120 Min)     | Yes               |
|      |             | Energy Star                       | Yes               |
|      |             | Favorite CH                       | Yes               |
|      |             | Surround                          | Yes               |
|      |             | 16:9 Mode                         | Yes               |
| G-12 | Accessories | Owner's Manual                    | Language          |
|      |             |                                   | W/ Warranty       |
|      |             | Remote Control Unit               | Yes               |
|      |             | Rod Antenna                       | No                |
|      |             |                                   | Poles             |
|      |             |                                   | Terminal          |
|      |             | Loop Antenna                      | No                |
|      |             |                                   | Terminal          |
|      |             | U/V Mixer                         | No                |
|      |             | DC Car Cord (Center+)             | No                |
|      |             | Guarantee Card                    | No                |
|      |             | Warning Sheet                     | No                |
|      |             | Circuit Diagram                   | No                |
|      |             | Antenna Change Plug               | No                |
|      |             | Service Station List              | No                |
|      |             | Important Safety Instruction      | No                |
|      |             | Dew/AHC Caution Sheet             | No                |
|      |             | AC Plug Adapter                   | No                |
|      |             | Quick Set-up Sheet                | No                |
|      |             | Battery                           | Yes               |
|      |             |                                   | UM size x pcs     |
|      |             |                                   | UM-4 x 2          |
|      |             |                                   | OEM Brand         |
|      |             | AC Cord                           | No                |
|      |             | AV Cord (2Pin-1Pin)               | No                |
|      |             | Registration Card (NDL Card)      | Yes               |
|      |             | PTB Sheet                         | No                |
|      |             | ESP Card                          | Yes               |
|      |             | 300 ohm to 75 ohm Antenna Adapter | No                |

## GENERAL SPECIFICATIONS

|      |                  |                    |                          |   |                    |                     |
|------|------------------|--------------------|--------------------------|---|--------------------|---------------------|
| G-13 | Interface        | Switch             | Front                    | Power   | Yes                |                     |
|      |                  |                    |                          | System Select                                       | No                 |                     |
|      |                  |                    |                          | Main Power SW                                       | No                 |                     |
|      |                  |                    |                          | Sub Power   | No                 |                     |
|      |                  |                    |                          | Channel Up  | Yes                |                     |
|      |                  |                    |                          | Channel Down  | Yes                |                     |
|      |                  |                    |                          | Volume Up   | Yes                |                     |
|      |                  |                    |                          | Volume Down   | Yes                |                     |
|      |                  |                    | Rear                     | AC/DC   | No                 |                     |
|      |                  |                    |                          | TV/CATV Selector                                    | No                 |                     |
|      |                  |                    |                          | Degauss   | No                 |                     |
|      |                  |                    |                          | Main Power SW                                       | No                 |                     |
|      |                  | Indicator          |                          | Power   | Yes(RED)           |                     |
|      |                  |                    |                          | Stand-by  | No                 |                     |
|      |                  |                    |                          | On Timer  | No                 |                     |
|      |                  | Terminals          | Front                    | Video Input = VIDEO3                                | RCA                |                     |
|      |                  |                    |                          | Audio Input = VIDEO3                                | RCA x 2            |                     |
|      |                  |                    |                          | Other Terminal                                      | Head Phone         |                     |
|      |                  |                    | Rear                     | Video Input(Rear1) = VIDEO1                         | RCA                |                     |
|      |                  |                    |                          | Video Input(Rear2) = VIDEO2                         | RCA                |                     |
|      |                  |                    |                          | Audio Input(Rear1) = VIDEO1                         | RCA x 2            |                     |
|      |                  |                    |                          | Audio Input(Rear2) = VIDEO2                         | RCA x 2            |                     |
|      |                  |                    |                          | Video Output  | RCA                |                     |
|      |                  |                    |                          | Audio Output  | RCA x 2            |                     |
|      |                  |                    |                          | Euro Scart  | No                 |                     |
|      |                  |                    |                          | Color Stream  | RCA x 3            |                     |
|      |                  |                    |                          | S Input   | Yes                |                     |
|      |                  |                    |                          | Diversity   | No                 |                     |
|      |                  |                    |                          | Ext Speaker   | No                 |                     |
|      |                  |                    |                          | DC Jack 12V(Center +)                               | No                 |                     |
|      |                  |                    |                          | VHF/UHF Antenna Input                               | F Type             |                     |
|      |                  |                    |                          | AC Outlet   | No                 |                     |
| G-14 | Set Size         |                    |                          | Approx. W x D x H (mm)                              |                    | 670 x 471.5 x 509   |
| G-15 | Weight           |                    |                          | Net (Approx.)                                       |                    | 33 kg ( 72.8 lbs)   |
|      |                  |                    |                          | Gross (Approx.)                                     |                    | 36.5 kg ( 80.5 lbs) |
| G-16 | Carton           | Master Carton      |                          | No  |                    |                     |
|      |                  |                    | Content                  | ---- Sets   |                    |                     |
|      |                  |                    | Material                 | -- /--  |                    |                     |
|      |                  |                    | Dimensions W x D x H(mm) | -- x -- x --  |                    |                     |
|      |                  | Gift Box           | Description of Origin    | No  |                    |                     |
|      |                  |                    |                          | Yes   |                    |                     |
|      |                  |                    | Material                 | Double/Brown  |                    |                     |
|      |                  |                    | Dimensions W x D x H(mm) | 760 x 589 x 614                                     |                    |                     |
|      |                  | Drop Test          | Design                   | As per Buyer's                                      |                    |                     |
|      |                  |                    | Description of Origin    | Yes   |                    |                     |
|      |                  |                    |                          | Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces |                    |                     |
|      |                  |                    | Height (cm)              | 31  |                    |                     |
|      |                  | Container Stuffing |                          | 180   | Sets/40' container |                     |
| G-17 | Cabinet Material | Cabinet            | Cabinet Front            | PS 94V0 DECABROM                                    |                    |                     |
|      |                  |                    | Cabinet Rear             | PS 94V0 DECABROM                                    |                    |                     |
|      |                  | PCB                | Non-Halogen Demand       | No  |                    |                     |
|      |                  |                    | Eyelet Demand            | Yes   |                    |                     |



# DISASSEMBLY INSTRUCTIONS

## 1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

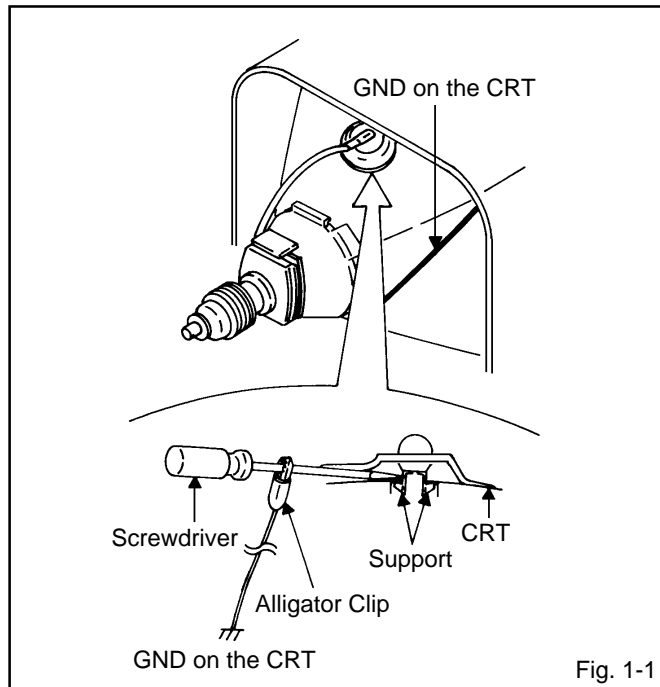
- \* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- \* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

### REMOVAL

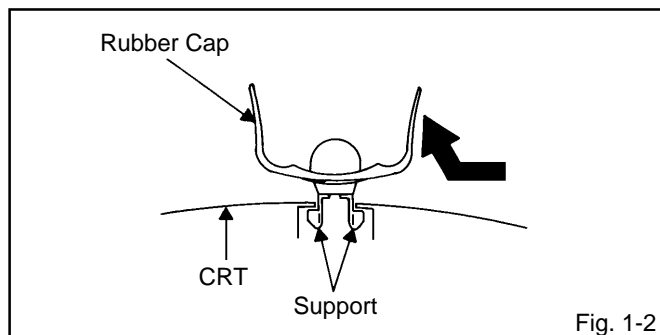
1. Follow the steps as follows to discharge the Anode Cap.  
(Refer to Fig. 1-1.)

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.

A cracking noise will be heard as the voltage is discharged.



2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support.  
(Refer to Fig. 1-2.)



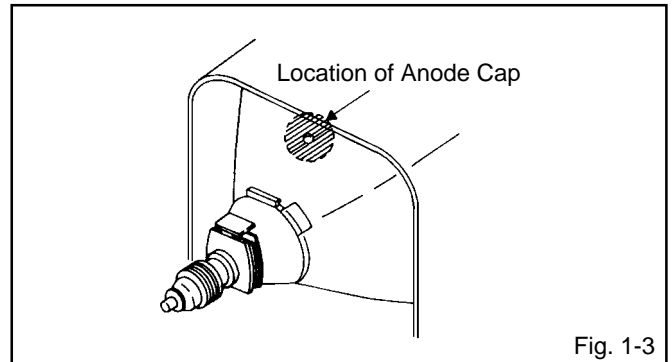
3. After one side is removed, pull in the opposite direction to remove the other.

### NOTE

Take care not to damage the Rubber Cap.

### INSTALLATION

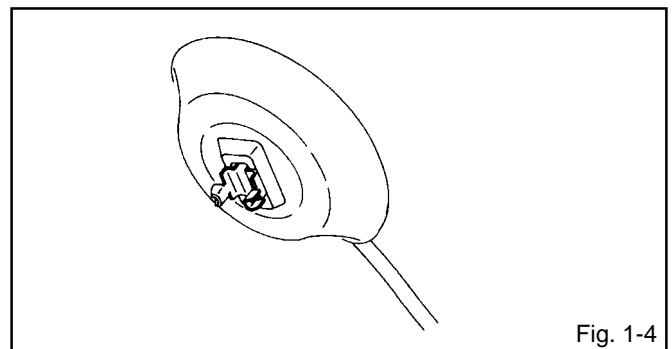
1. Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 1-3.)



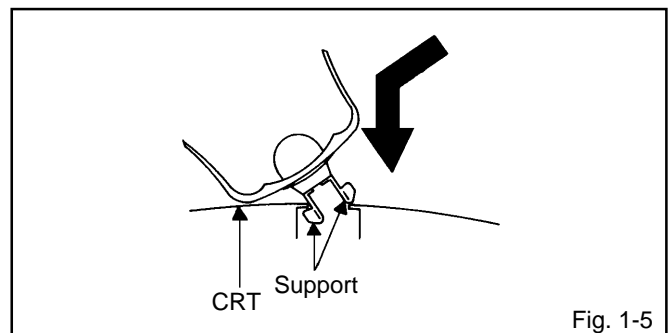
### NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. (Refer to Fig. 1-4.)



4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 1-5.



5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

## DISASSEMBLY INSTRUCTIONS

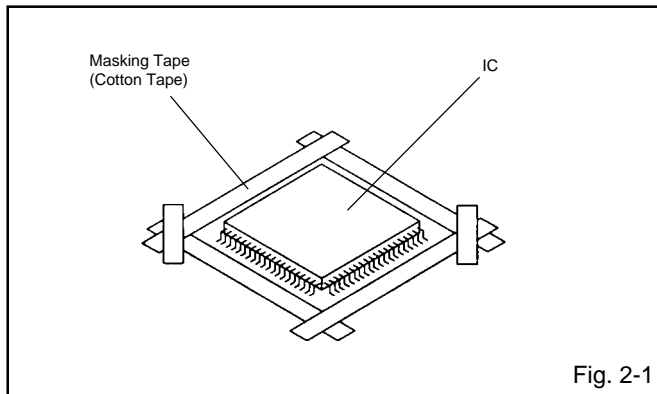
### 2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

#### REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 2-1.)

#### NOTE

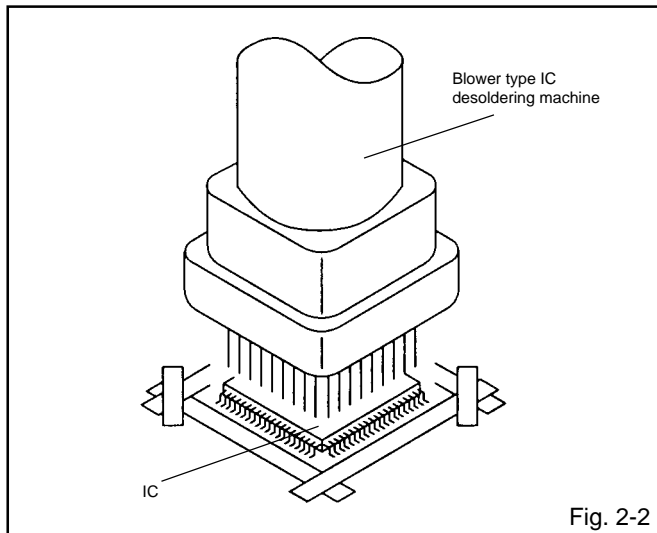
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 2-2.)

#### NOTE

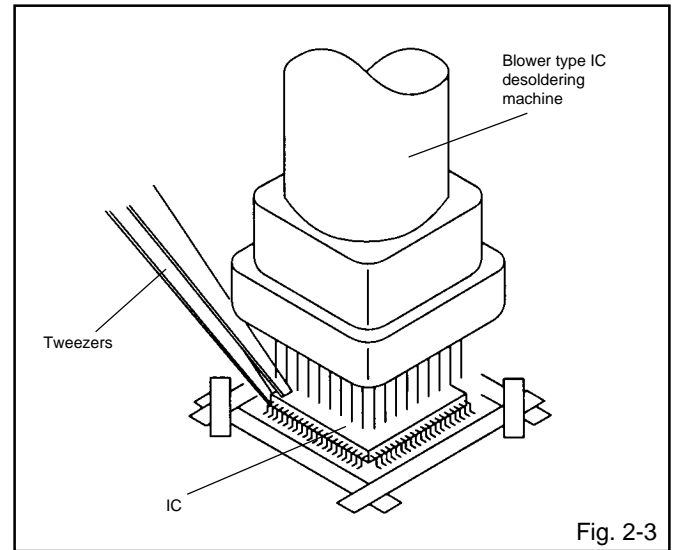
Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.



3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 2-3.)

#### NOTE

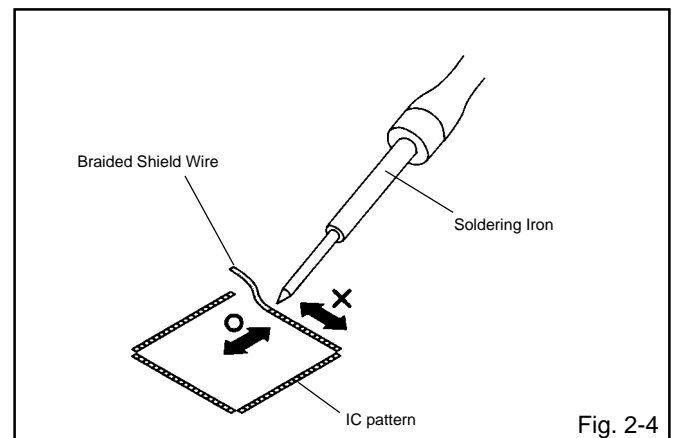
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 2-4.)

#### NOTE

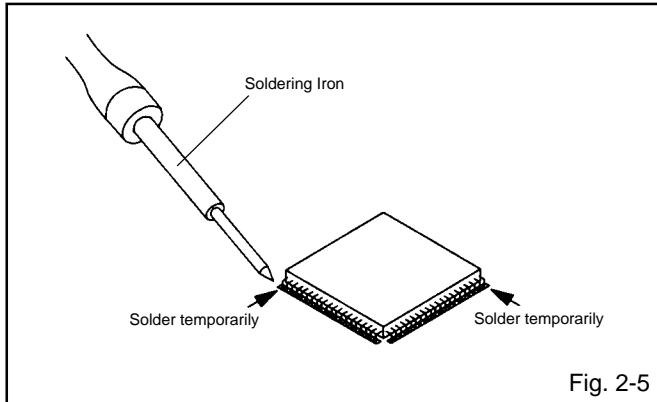
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



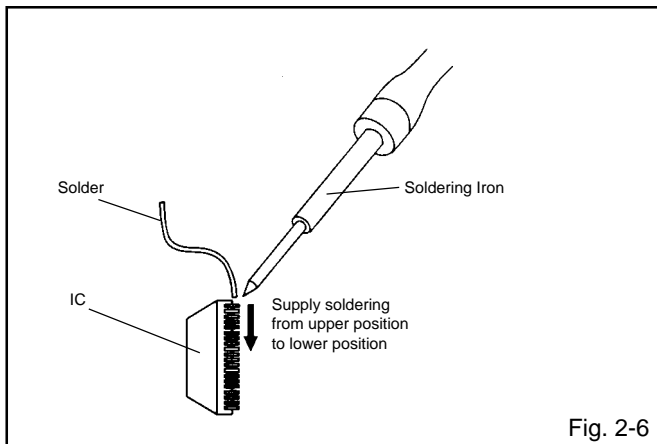
# DISASSEMBLY INSTRUCTIONS

## INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. (Refer to Fig. 2-5.)



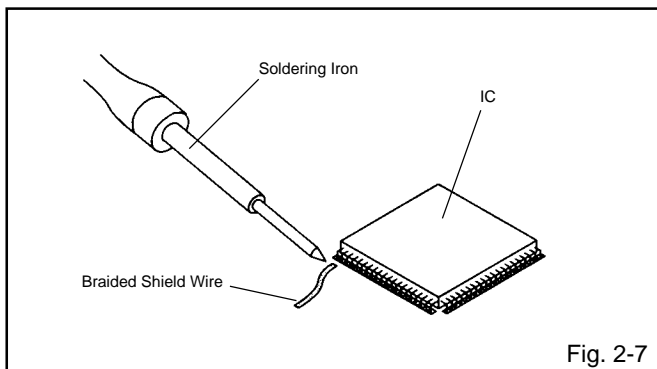
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 2-6.)



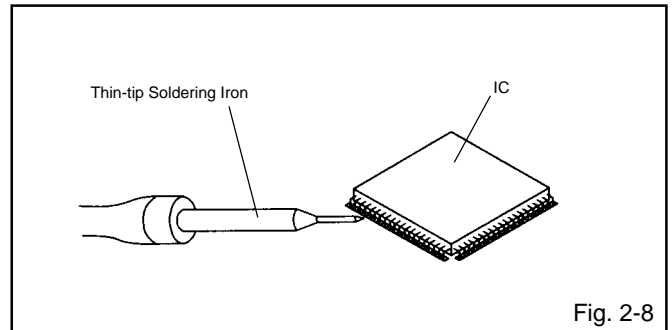
3. Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 2-7.)

### NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. (Refer to Fig. 2-8.)



5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

### NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

## SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.  
To enter the Service Mode, press both set key and remote control key for more than 1 second.

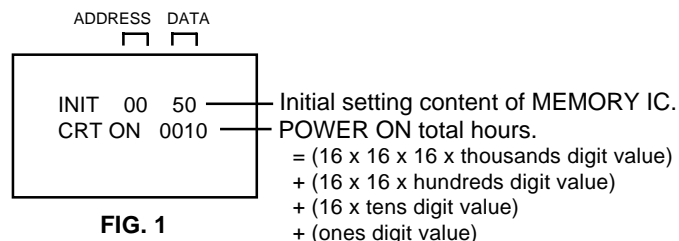
| Set Key      | Remocon Key | Operations  |
|--------------|-------------|---|
| VOL. (-) MIN | 0           | Releasing of V-CHIP PASSWORD.   |
| VOL. (-) MIN | 1           | Initialization of the factory.<br>NOTE: Do not use this for the normal servicing.<br>If you set a factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours. |
| VOL. (-) MIN | 6           | POWER ON total hours is displayed on the screen.<br>Refer to the "CONFIRMATION OF HOURS USED".<br><br>Can be checked of the INITIAL DATA of MEMORY IC.<br>Refer to the "WHEN REPLACING EEPROM (MEMORY) IC". |
| VOL. (-) MIN | 8           | Writing of EEPROM initial data.<br>NOTE: Do not use this for the normal servicing.  |
| VOL. (-) MIN | 9           | Display of the Adjustment MENU on the screen.<br>Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).   |

## CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

**NOTE: If you set a factory initialization, the total hours is reset to "0".**

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button (6) on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.



## WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

**NOTE: No need setting for after INI 1F due to the adjustment value.**

| INI | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 | +8 | +9 | +A | +B | +C | +D | +E | +F |
|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00  | 50 | E8 | 0A | A4 | 5E | B3 | 24 | B7 | 3D | AC | AA | 04 | 40 | 40 | 40 | 7F |
| 10  | 50 | 00 | 00 | 00 | 00 | 00 | 00 | 99 | 3F | 0F | 0D | C2 | A4 | 88 | 43 | 00 |

**Table 1**

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button (6) on the remote control for more than 1 second.  
ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the VOL. UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using VOL. UP/DOWN button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.  
**After the data input, set to the initializing of shipping.**
9. Turn POWER on.
10. Press both VOL. DOWN button on the set and Channel button (1) on the remote control for more than 1 second.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.  
The unit will now have the correct DATA for the new MEMORY IC.

# ELECTRICAL ADJUSTMENTS

## 1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

### CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

**Prepare the following measurement tools for electrical adjustments.**

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

### On-Screen Display Adjustment

1. In the condition of NO indication on the screen.  
Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

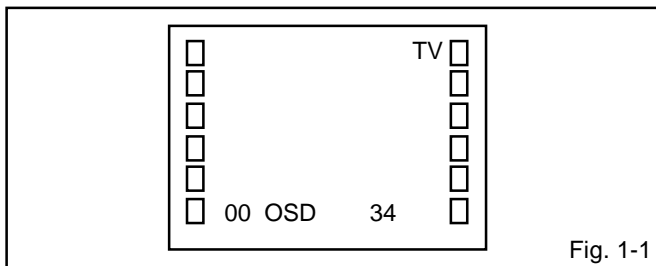


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

| NO. FUNCTION     | NO. FUNCTION       |
|------------------|--------------------|
| 00 OSD H         | 19 CONTRAST CENT   |
| 01 CUT OFF       | 20 CONTRAST MIN    |
| 02 H. VCO        | 21 COLOR MAX       |
| 03 H. PHASE      | 22 COLOR CENTER    |
| 04 AFC GAIN      | 23 COLOR MIN       |
| 05 V. SHIFT      | 24 TINT            |
| 06 H. SIZE       | 25 SHARPNESS       |
| 07 V. SIZE       | 26 Cb DELAY FINE   |
| 08 V. LINEARITY  | 27 Cr DELAY FINE   |
| 09 VS CORRECTION | 28 Cb PEDESTAL ADJ |
| 10 DRIVE R       | 29 Cr PEDESTAL ADJ |
| 11 DRIVE B       | 30 E/W PARABOLA    |
| 12 R CUT OFF     | 31 E/W CORNER      |
| 13 G CUT OFF     | 32 E/W TRAPEZIUM   |
| 14 B CUT OFF     | 33 LEVEL           |
| 15 BRIGHT MAX    | 34 SEPARATION1     |
| 16 BRIGHT CENT   | 35 SEPARATION2     |
| 17 BRIGHT MIN    | 36 X-RAY           |
| 18 CONTRAST MAX  | 88 READ DATA       |

Fig. 1-2

## 2. BASIC ADJUSTMENTS

### 2-1: CONSTANT VOLTAGE

1. Place the set with Aging Test for more than 5 minutes.
2. Set condition is AV MODE without signal.
3. Connect the digital voltmeter to the **TP003**.
4. Adjust the **VR502** until the digital voltmeter is  $117 \pm 1V$ .

### 2-2: CUT OFF

1. Place the set with Aging Test for more than 15 minutes.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
3. Adjust the **Screen Volume** until a dim raster is obtained.

### 2-3: WHITE BALANCE

**NOTE:** Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(12)** on the remote control to select "R. BIAS".
5. Press the CH. UP/DOWN button on the remote control to select the "R. BIAS", "G. BIAS", "B. BIAS", "B. DRIVE" or "G. DRIVE".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R. BIAS, G. BIAS, B. BIAS, B. DRIVE, and G. DRIVE at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is looked like a white.

### 2-4: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

### 2-5: HORIZONTAL PHASE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "H. PHAS".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

# ELECTRICAL ADJUSTMENTS

## 2-6: HORIZONTAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "H. SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes  $11 \pm 1\%$ .

## 2-7: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR401** until the horizontal line becomes fit to the notch of the shadow mask.

## 2-8: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V. SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes  $9 \pm 2\%$ .

## 2-9: VERTICAL LINEARITY

**NOTE:** Adjust after performing adjustments in section 2-8.  
After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "V. LIN".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

## 2-10: LEVEL

1. Receive the monoscope pattern (70dB).
2. Connect the AC voltmeter to **pin 6 of CP101**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "LEVEL".
4. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is  $85 \pm 2\text{mV}$ .

## 2-11: PARABOLA

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(30)** on the remote control to select "PARABOLA".
4. Press the VOL. UP/DOWN button on the remote control until the right and left vertical lines are straight.

## 2-12: TRAPEZIUM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select "TRAPEZIUM".
4. Press the VOL. UP/DOWN button on the remote control until the both vertical lines of the screen become parallel.

## 2-13: SEPARATION 1, 2

**Please do the method (1) or method (2) adjustment.**

### Method (1)

1. Set the multi-sound signal generator for each different L-ch and R-ch frequency (Ex. L-ch=2KHz, R-ch=400Hz) and receive the RF.
2. Connect the oscilloscope to the **Audio Out Jack**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(34)** on the remote control to select "SEP 1".
4. Press the VOL. UP/DOWN button on the remote control to adjust it until the audio output wave becomes a fine sine wave.
5. Press the CH UP button once the set to "SEP 2" mode. Then perform the above adjustment 4.

### Method (2)

1. Set the multi-sound signal generator L-ch=1KHz, R-ch=Non input and receive the RF.
2. Connect the oscilloscope to the **Audio Out Jack (R-ch)**.
3. Press the AUDIO SELECT button on the remote control to set to the stereo mode.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(34)** on the remote control to select "SEP 1".
5. Press the VOL. UP/DOWN button on the remote control to adjust it until the R-ch output becomes minimum.
6. Set the multi-sound signal generator L-ch=Non input, R-ch=1KHz and receive the RF.
7. Connect the oscilloscope to the **Audio Out Jack (L-ch)**.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(35)** on the remote control to select "SEP 2".
9. Press the VOL. UP/DOWN button on the remote control to adjust it until the L-ch output becomes minimum.

# ELECTRICAL ADJUSTMENTS

## 2-14: BRIGHT CENT

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "BRI CENT".
4. Press the VOL. UP/DOWN button on the remote control until the white 0% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.
7. Press the TV/VIDEO button on the remote control to set to the CS mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "BRI CENT".
9. Press the VOL. UP/DOWN button on the remote control until the brightness step No. becomes "75".

## 2-15: TINT/COLOR CENT

1. Receive the color bar pattern.
2. Connect the oscilloscope to **TP806**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(24)** on the remote control to select "TINT".
4. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes as straight line **(Refer to Fig. 2-1)**
5. Connect the oscilloscope to **TP804**.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(22)** on the remote control to select "COL.CENT".
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to  $120 \pm 10\%$  of the white level. **(Refer to Fig. 2-2)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.
10. Press the TV/VIDEO button on the remote control to set to the CS mode.
11. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

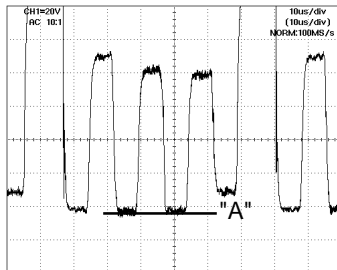


Fig. 2-1

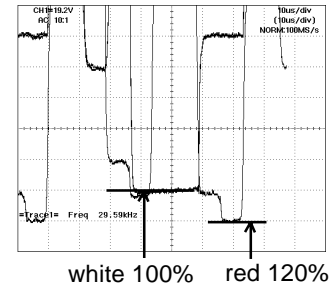


Fig. 2-2

## 2-16: CONTRAST MAX MANUAL

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(18)** on the remote control to select "CONT. MAX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "96".
3. Receive a broadcast and check if the picture is normal.
4. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 1~3. Press the TV/VIDEO button on the remote control to set to the CS mode. Then perform the above adjustments 1~3.

## 2-17: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-3)**

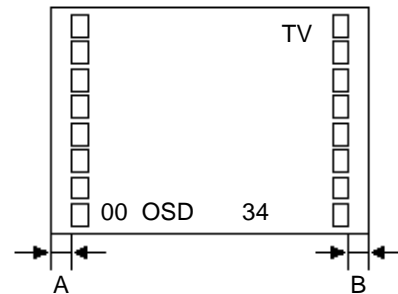


Fig. 2-3

## 2-18: Confirmation of Fixed Value (Step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below. (RF/AV/CS)

| NO. | FUNCTION      | STEP NO. | NO. | FUNCTION  | STEP NO. |
|-----|---------------|----------|-----|-----------|----------|
| 02  | H.VCO         | 03       | 21  | COL.MAX   | 90       |
| 04  | AFC GAIN      | 06       | 23  | COL.MIN   | 00       |
| 05  | V.SHIFT       | 02       | 25  | SHARPNESS | 40       |
| 09  | VS.CORRECTION | 38       | 26  | CB DL     | 00       |
| 15  | BRI.MAX       | 160      | 27  | CR DL     | 00       |
| 17  | BRI.MIN       | 50       | 28  | CB PED    | 08       |
| 19  | CONT.CENT     | 64       | 29  | CR PED    | 08       |
| 20  | CONT.MIN      | 15       |     |           |          |

# ELECTRICAL ADJUSTMENTS

## 3. PURITY AND CONVERGENCE ADJUSTMENTS

### NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

### 3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**  
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

### 3-2: PURITY

### NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.  
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

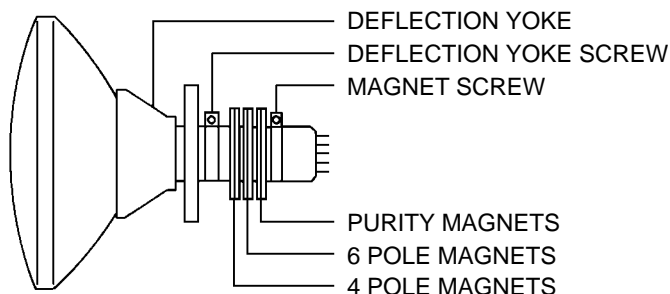


Fig. 3-1

### 3-3: STATIC CONVERGENCE

### NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 3-4: DYNAMIC CONVERGENCE

### NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

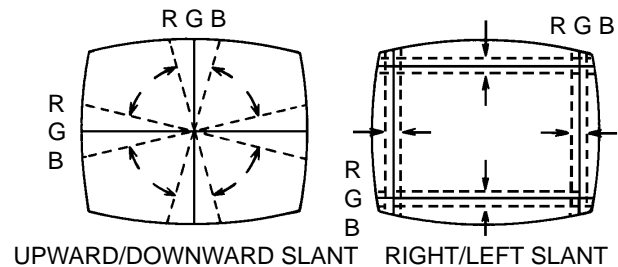
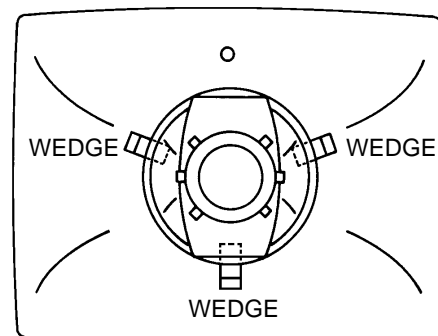


Fig. 3-2-a



WEDGE POSITION

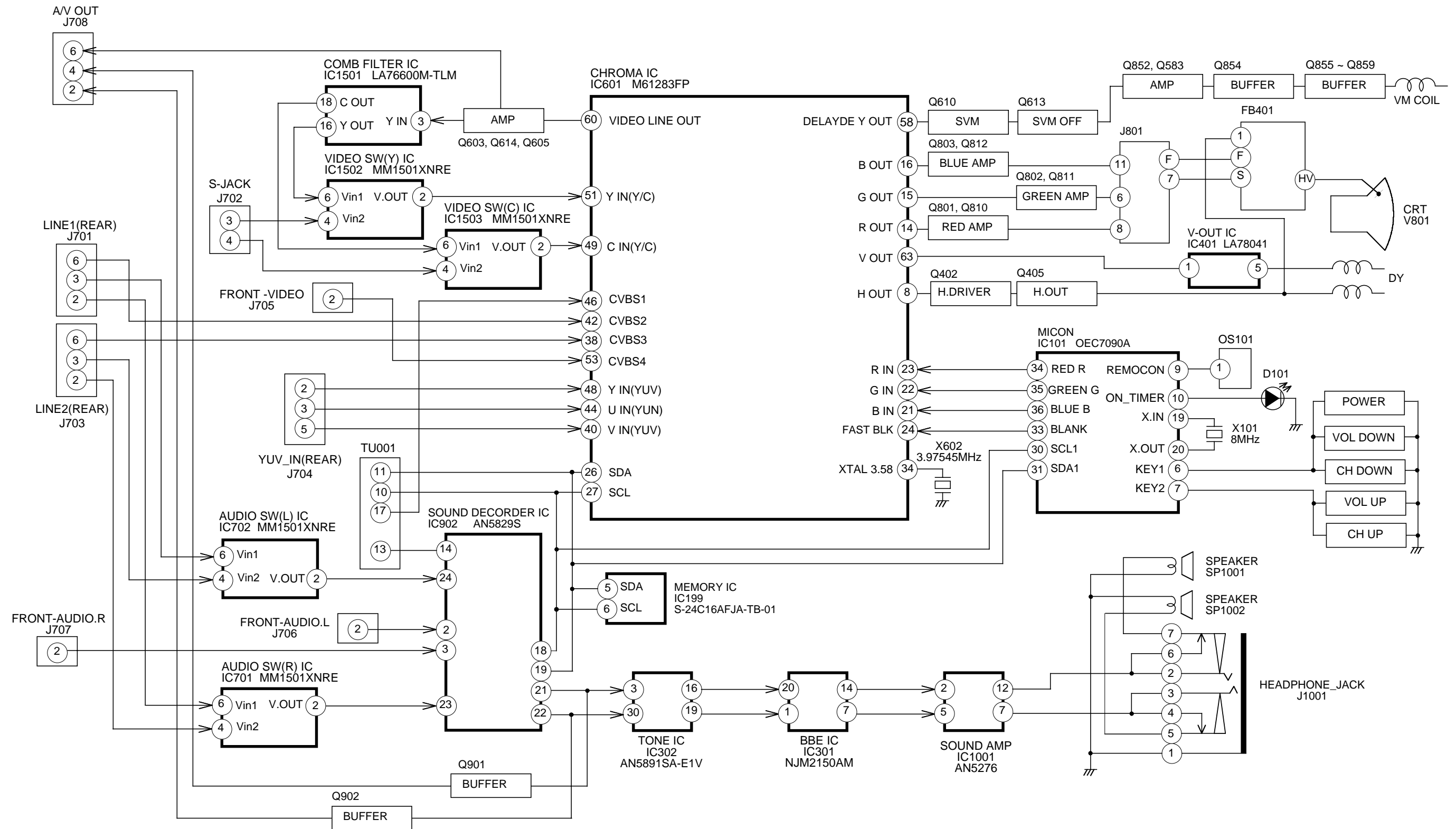
Fig. 3-2-b



#### 4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

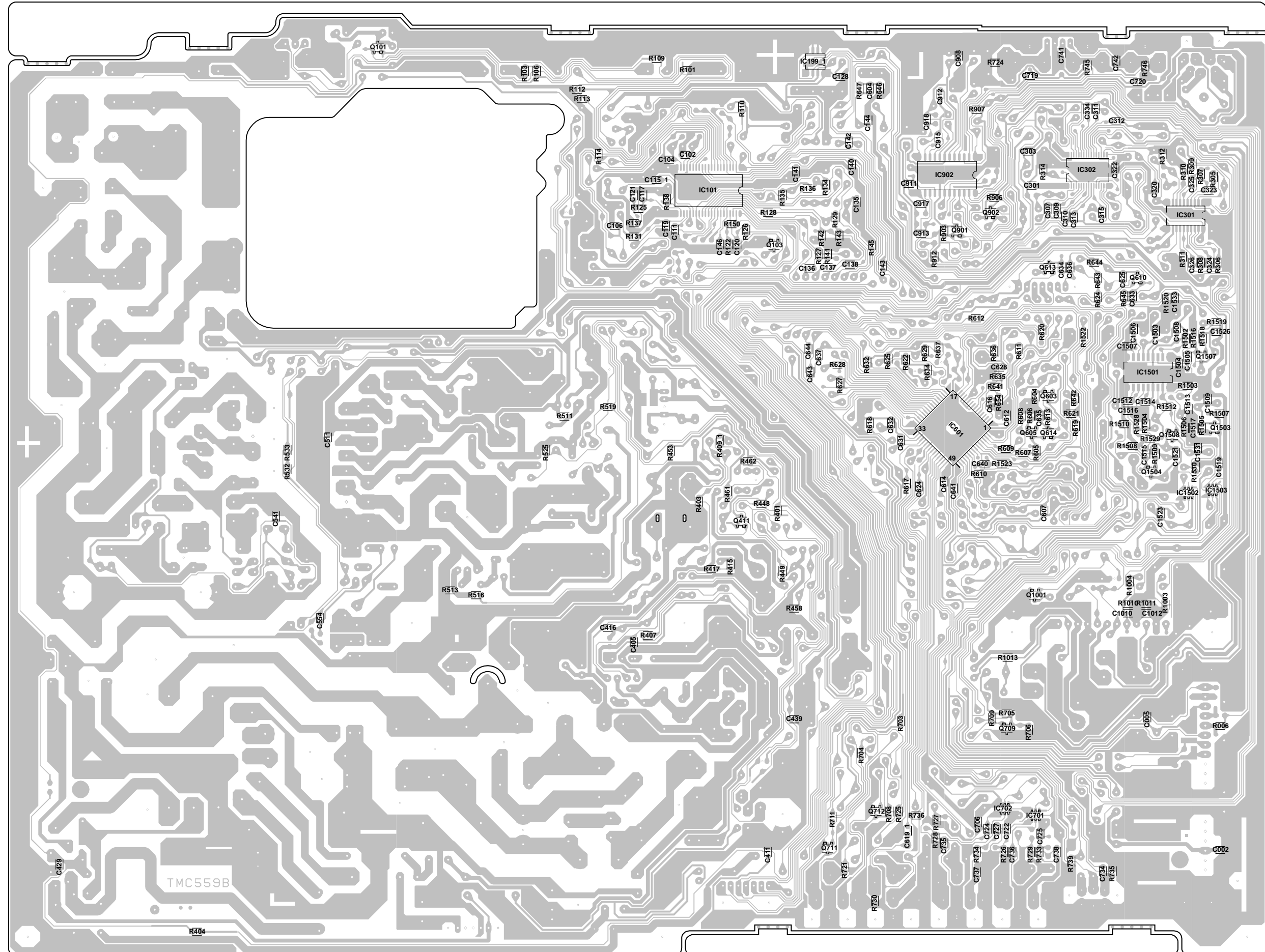


# BLOCK DIAGRAM



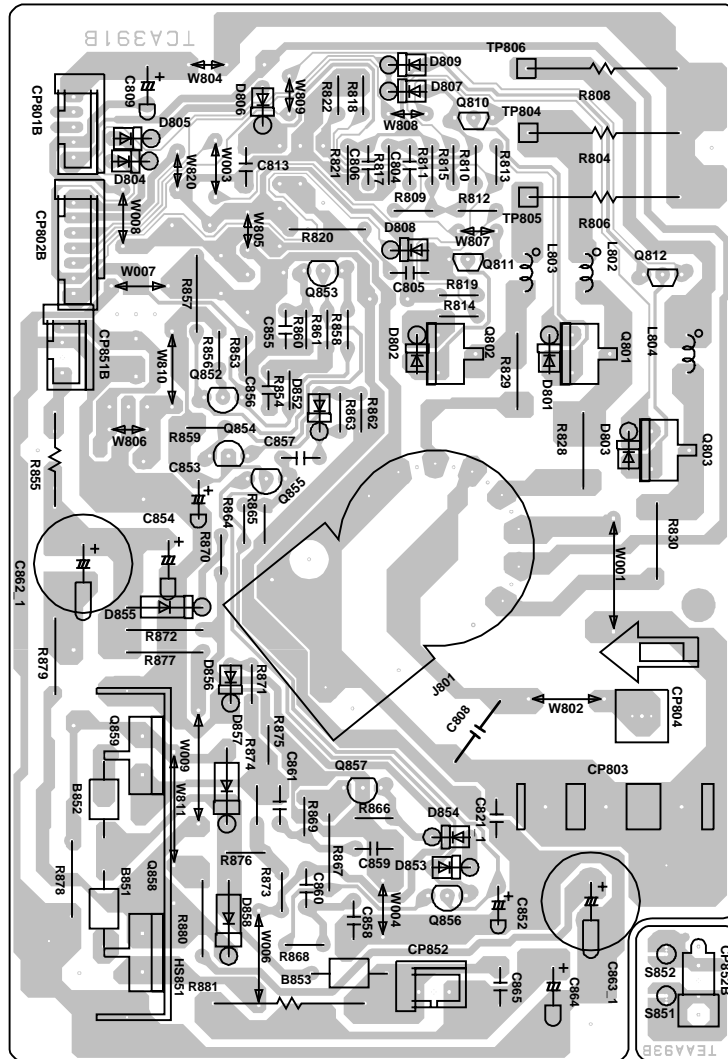
REPLACE AS MARKED. RISK OF FIRE.

PRINTED CIRCUIT BOARDS  
MAIN (CHIP MOUNTED PARTS)  
SOLDER SIDE

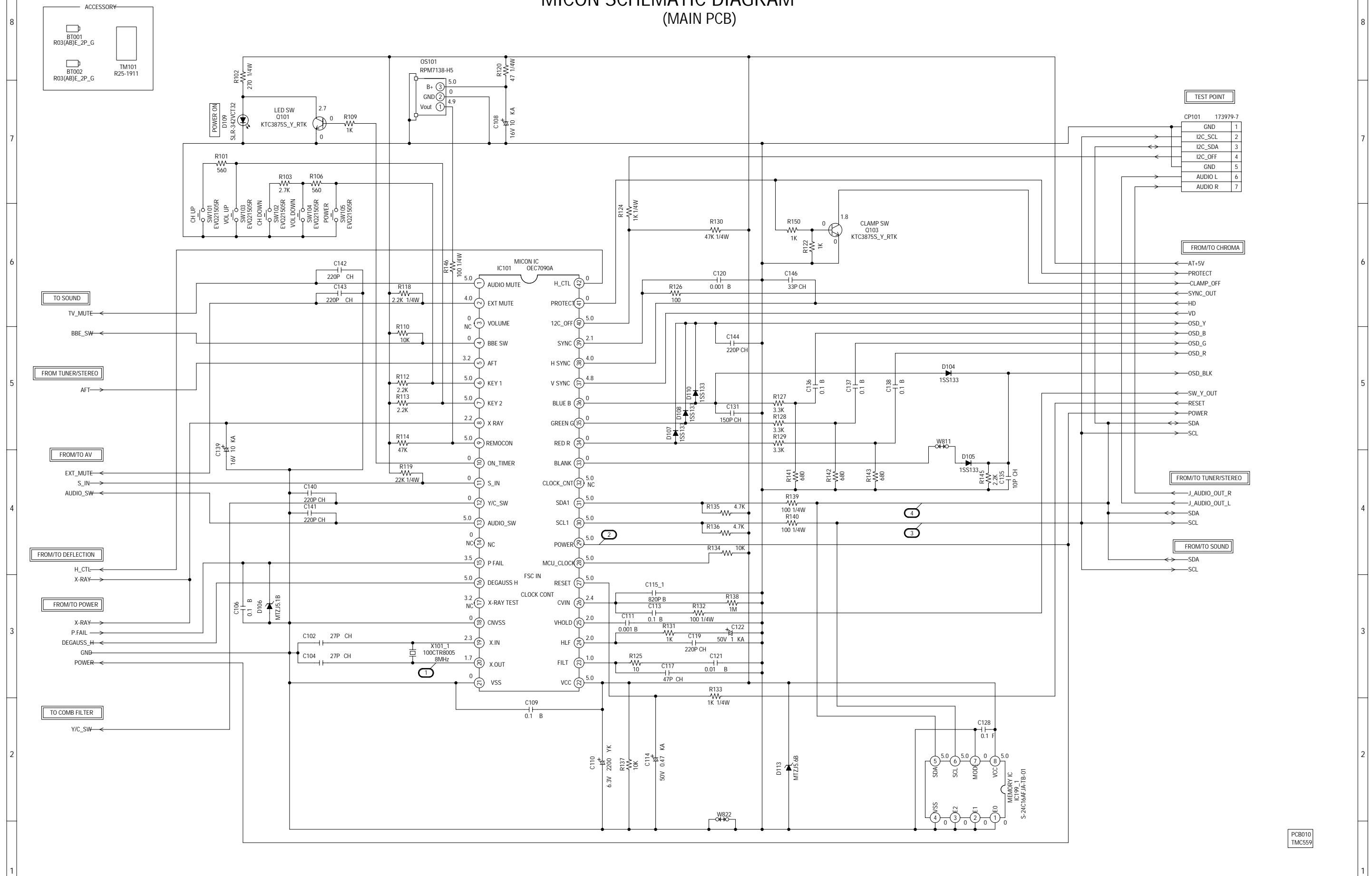


# PRINTED CIRCUIT BOARDS

## CRT/VM COIL SOLDER SIDE



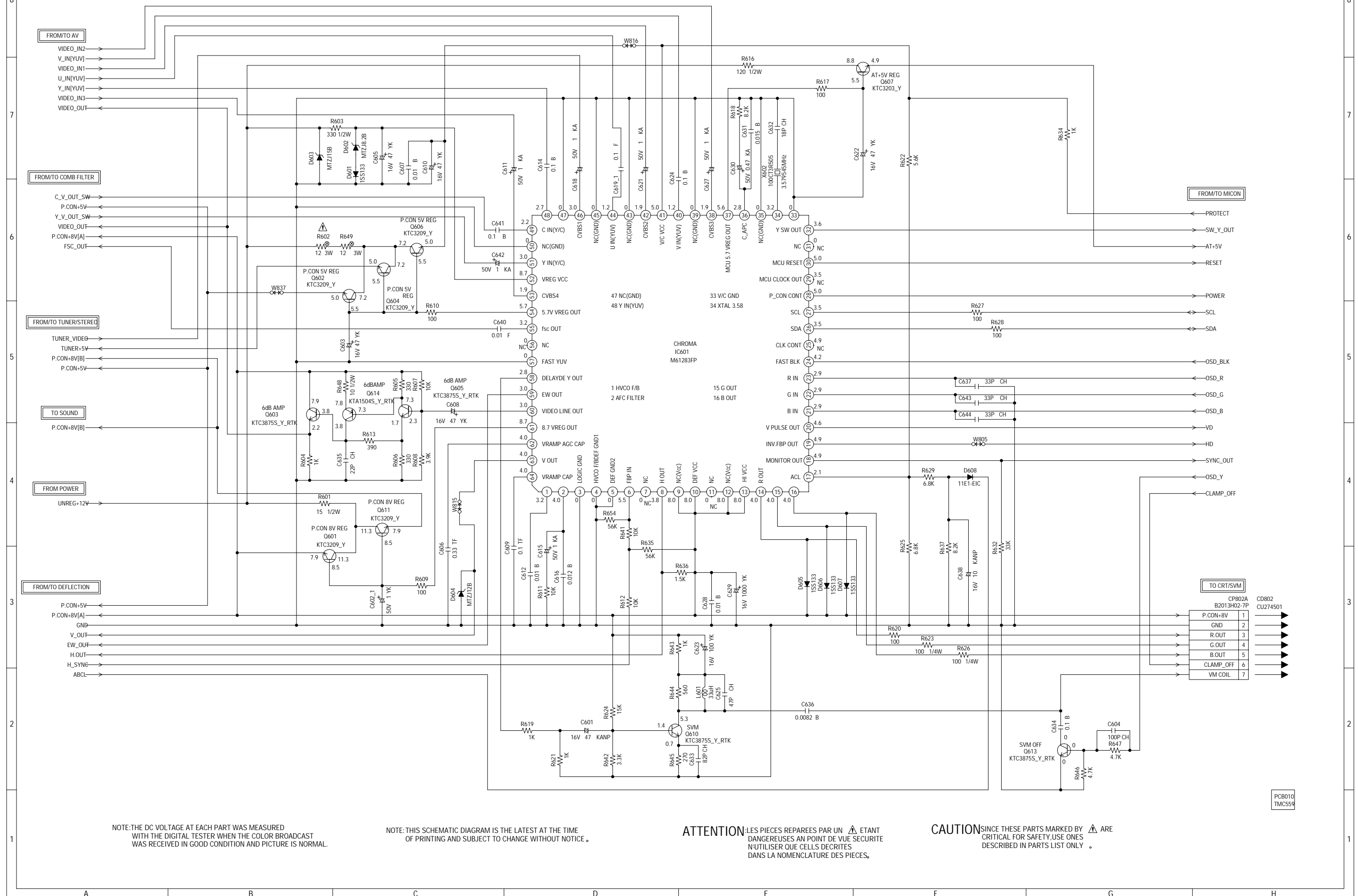
## MICON SCHEMATIC DIAGRAM (MAIN PCB)



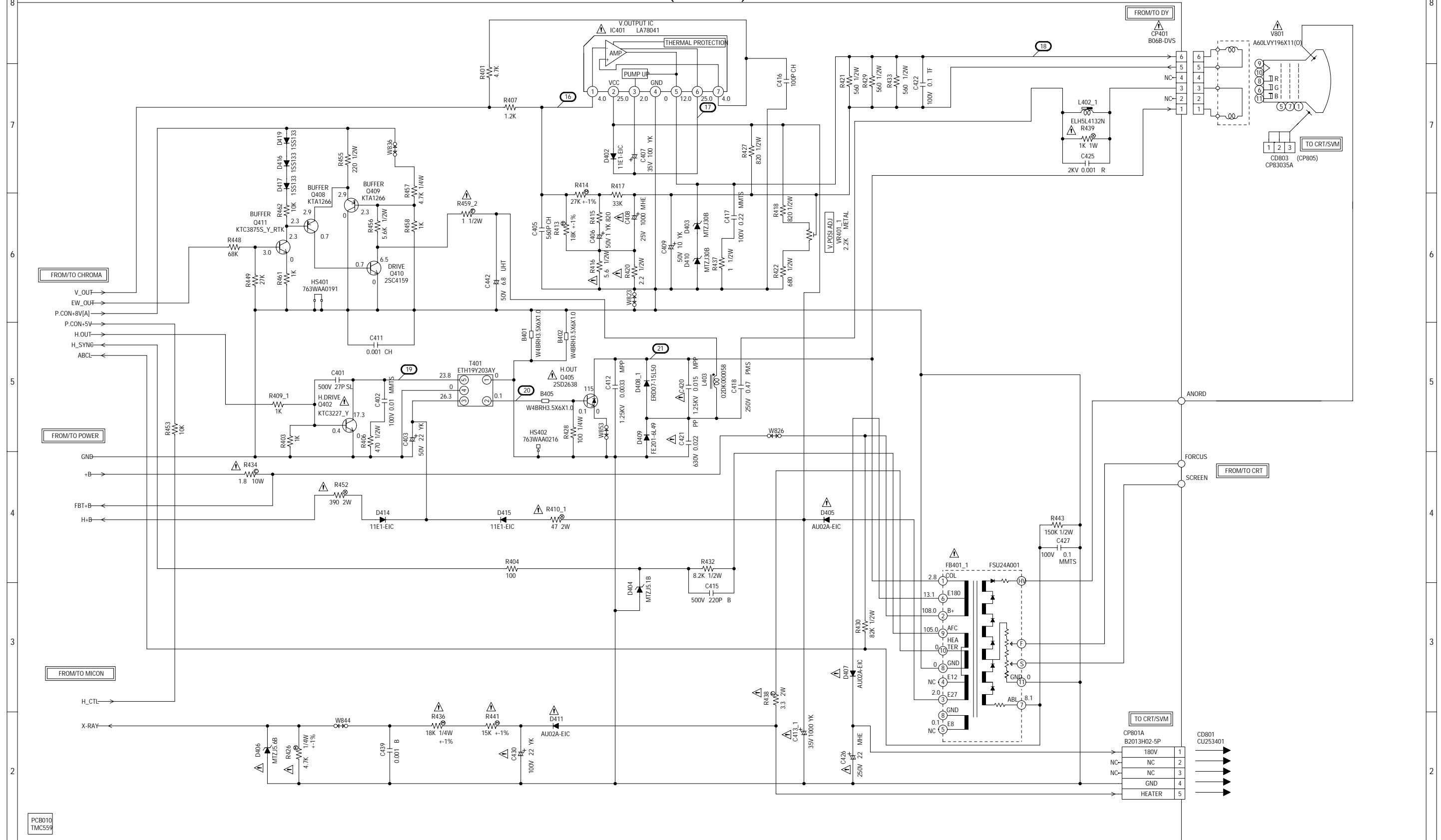
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

# CHROMA SCHEMATIC DIAGRAM (MAIN PCB)





### DEFLECTION SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

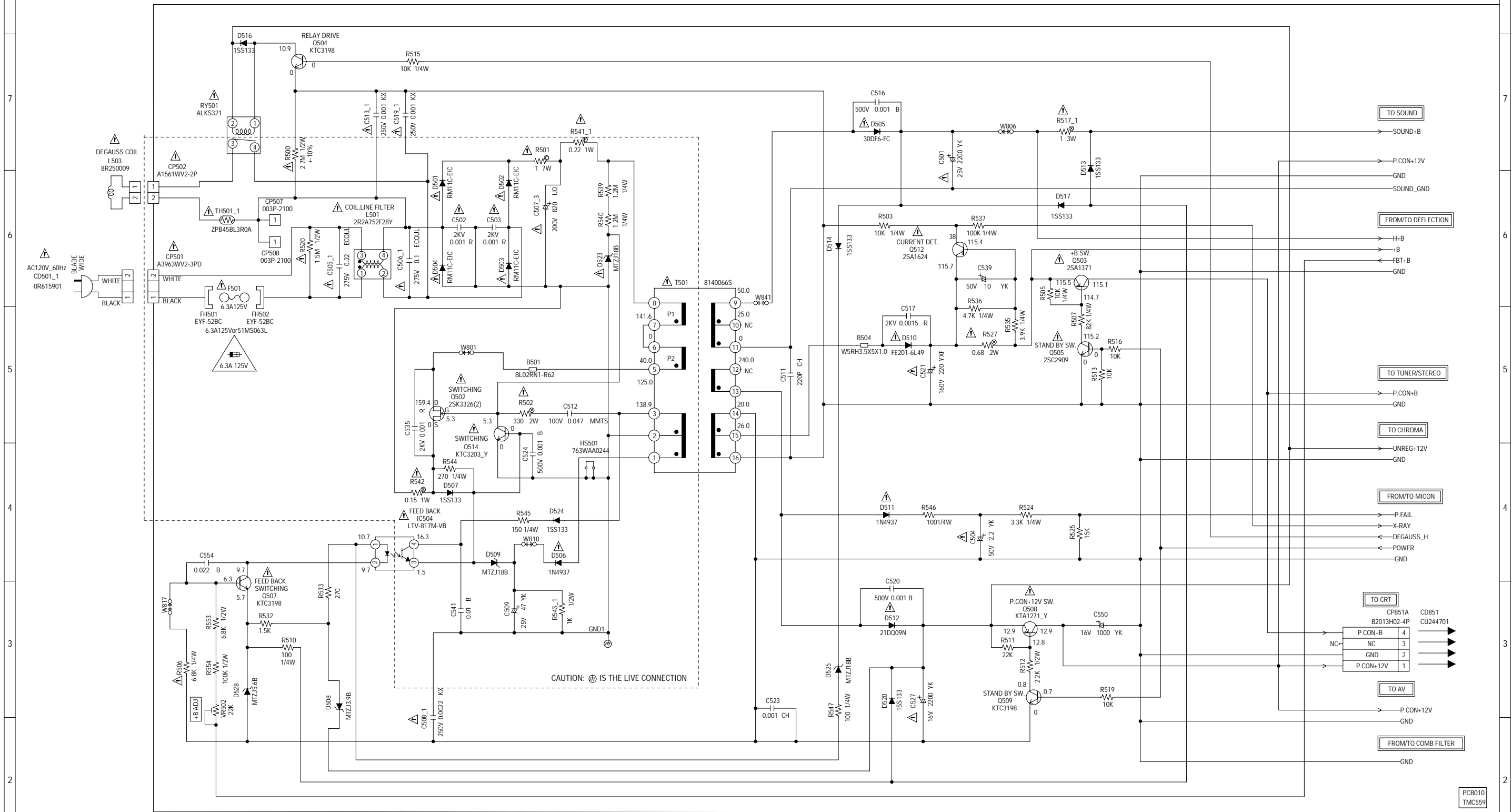
**CAUTION** SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

**ATTENTION:** LES PIÈCES RÉPARÉES PAR UN  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.  
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP  
IS NON POLAR ONE.



POWER SCHEMATIC DIAGRAM  
(MAIN PCB)



CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE  
N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501)

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED  
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST  
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

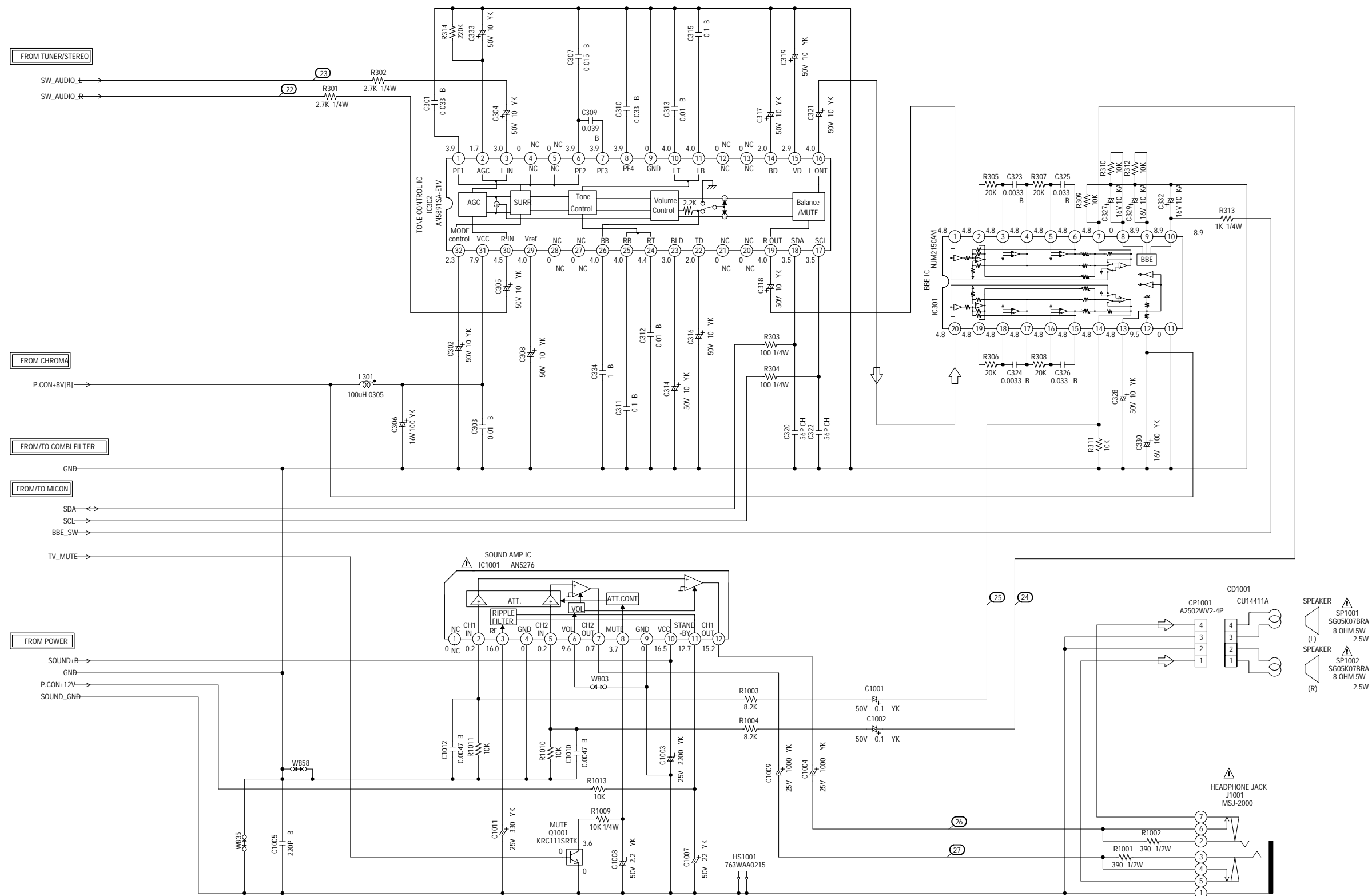
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME  
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.  
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP  
IS NON POLAR ONE.

CAUTION: SINCE THESE PARTS MARKED BY [symbol] ARE  
CRITICAL FOR SAFETY, USE ONES  
DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN [symbol] ÉTANT  
DANGEREUSES AU POINT DE VUE SÉCURITÉ  
N'UTILISER QUE CELLES DÉCRITES  
DANS LA NOMENCLATURE DES PIÉCES.

# SOUND SCHEMATIC DIAGRAM (MAIN PCB)



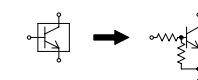
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

**CAUTION** SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

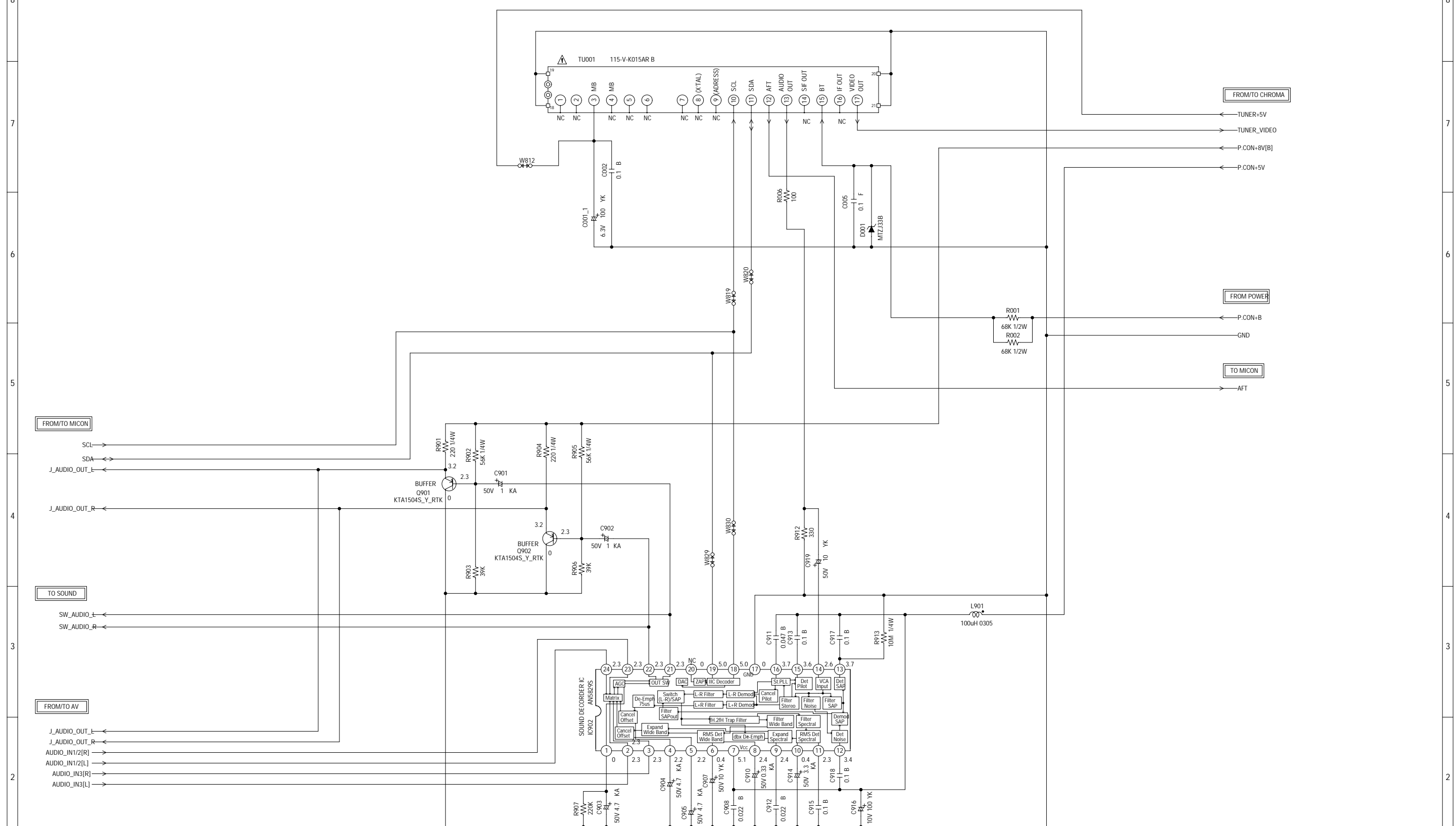
**ATTENTION** LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: DIGITAL TRANSISTOR



PCB010  
TMC559


## TUNER/STEREO SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL

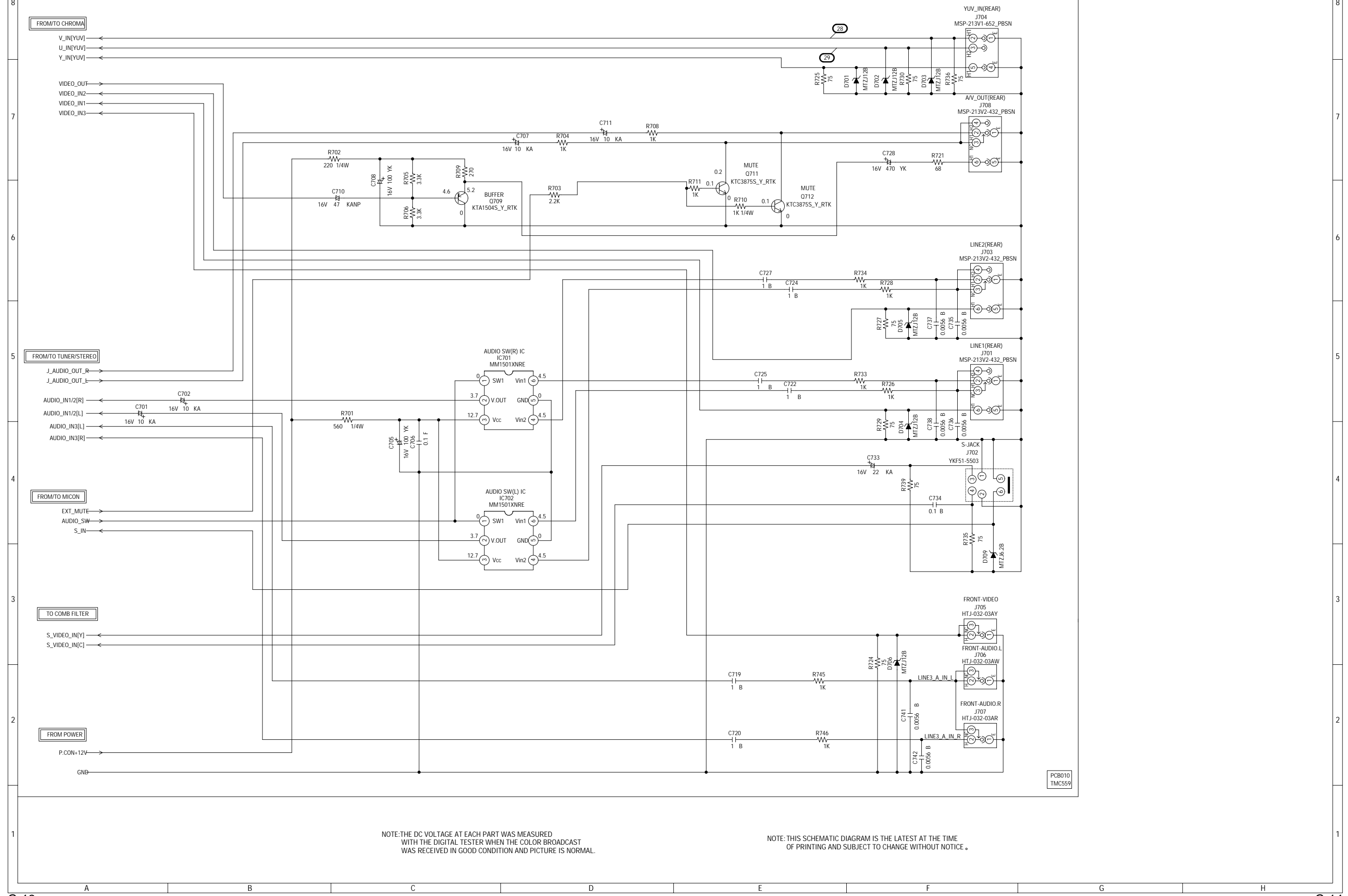
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

**CAUTION** SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

**ATTENTION:** LES PIÈCES RÉPARÉES PAR UN  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

PCB010  
TMC559

AV SCHEMATIC DIAGRAM  
(MAIN PCB)

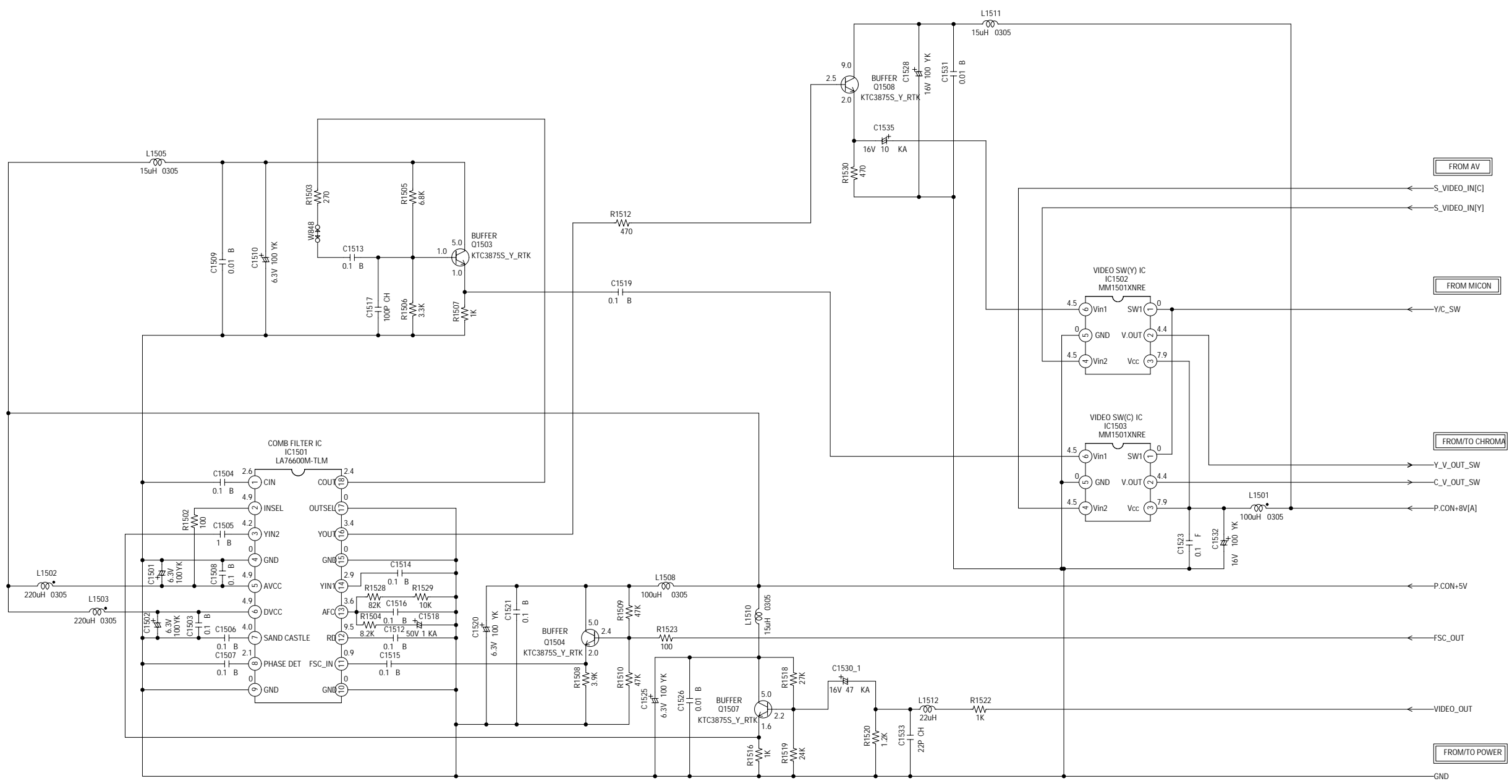


NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED  
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST  
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME  
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

PCB010  
TMC559

COMB/FILTER SCHEMATIC DIAGRAM  
(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME  
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

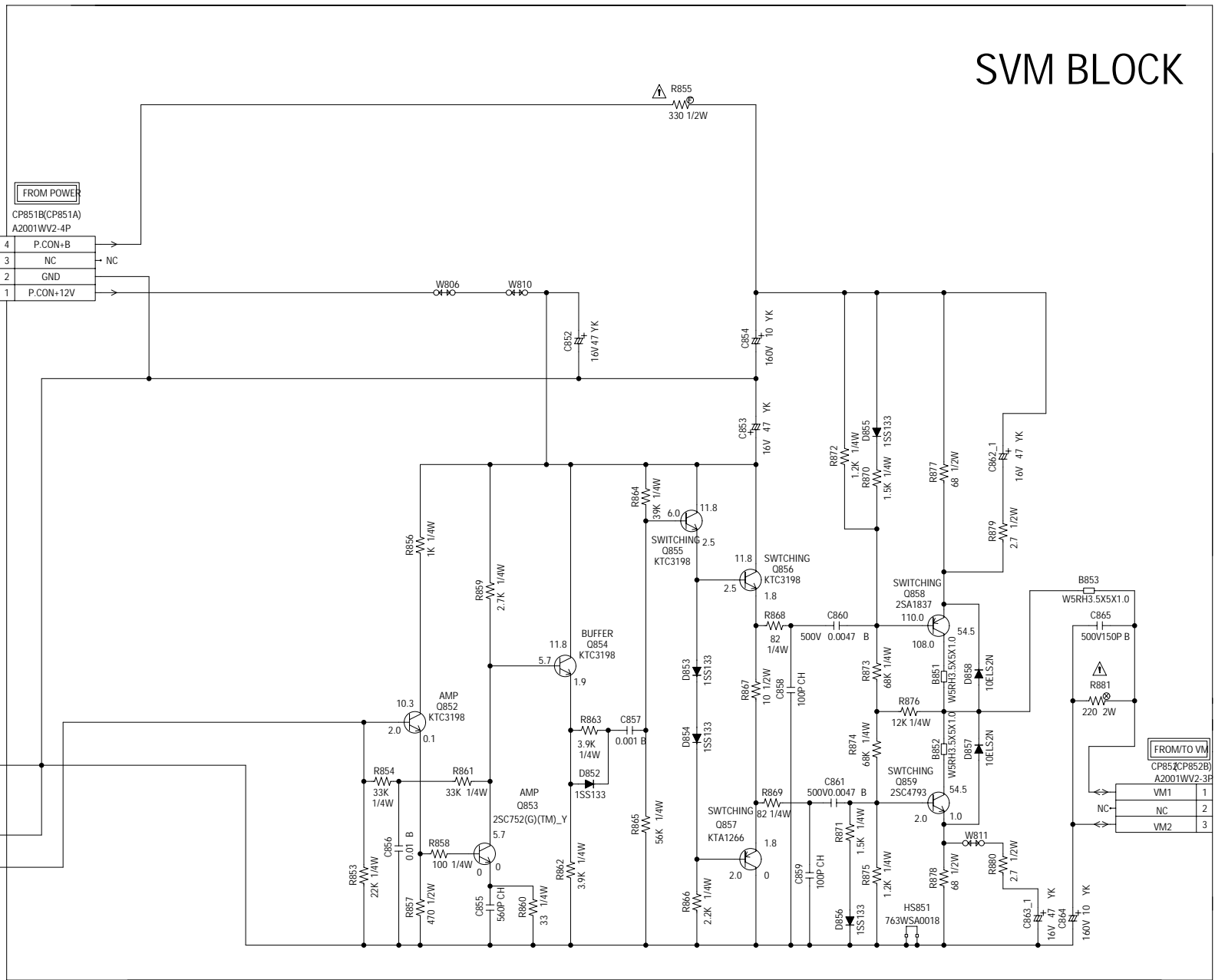
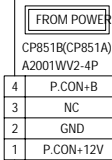
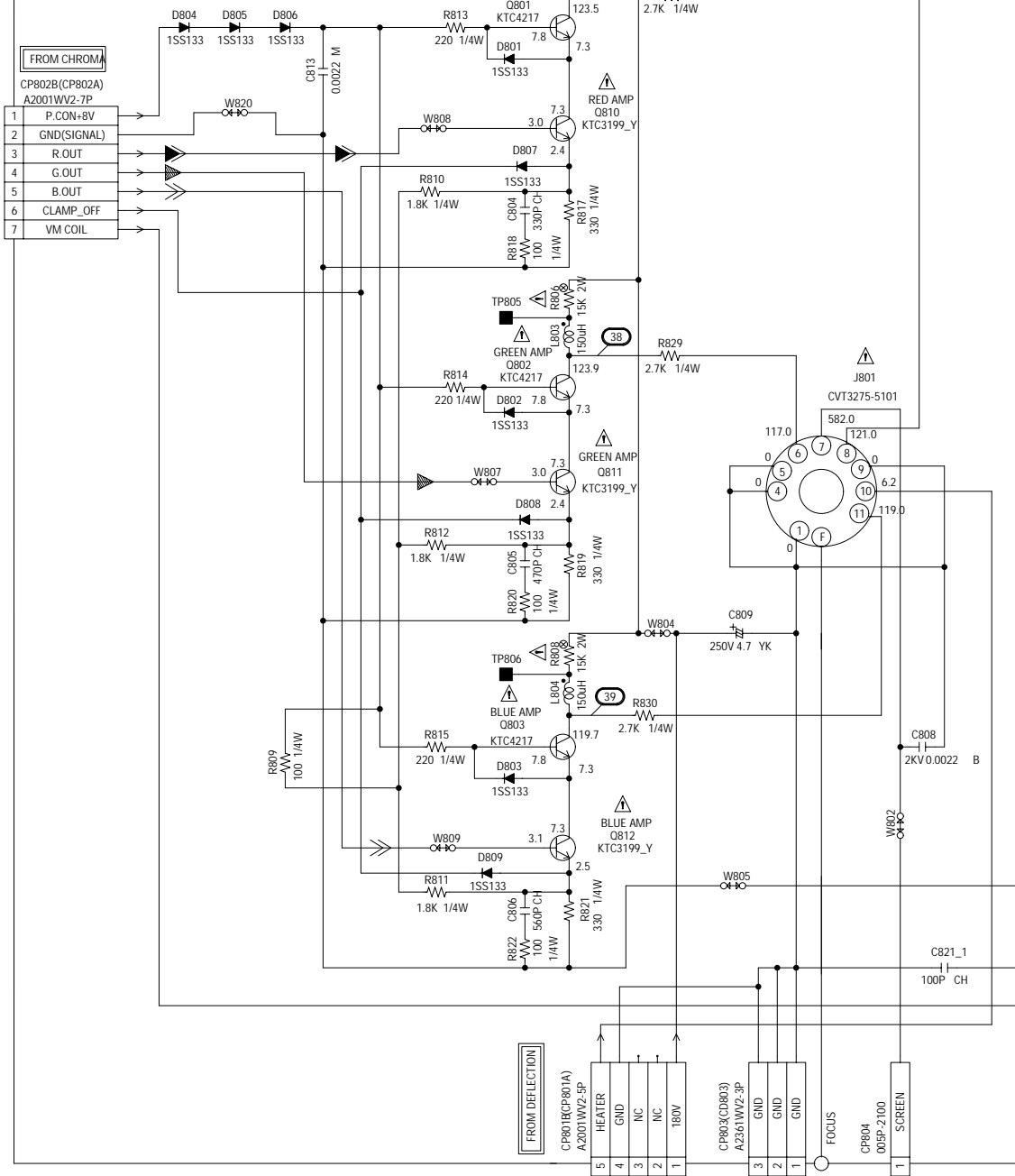
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED  
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST  
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

PCB010  
TMC559

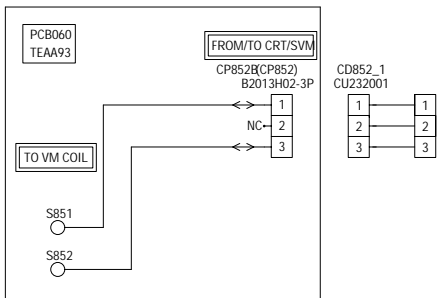
CRT/SVM SCHEMATIC DIAGRAM (CRT PCB)

CRT BLOCK

SVM BLOCK





(VM COIL PCB)



NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED  
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST  
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME  
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

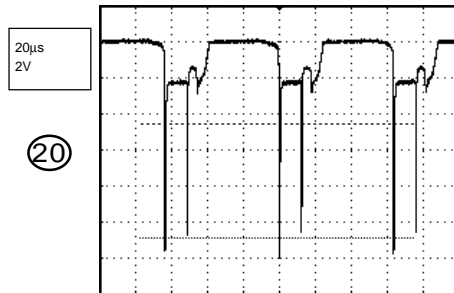
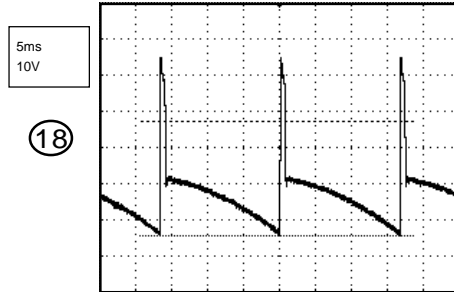
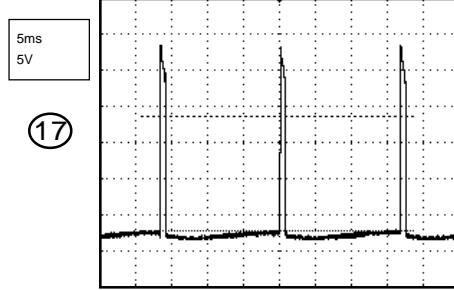
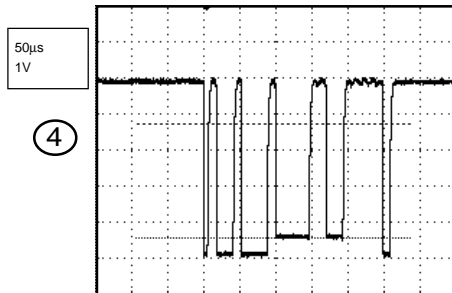
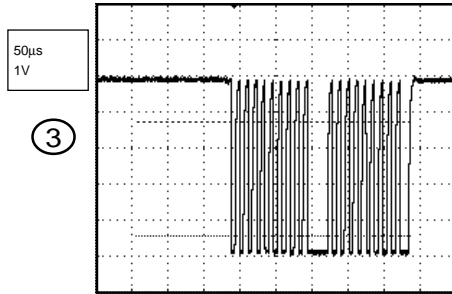
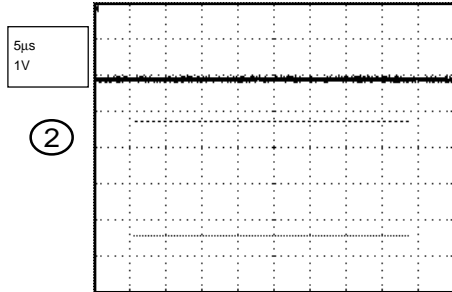
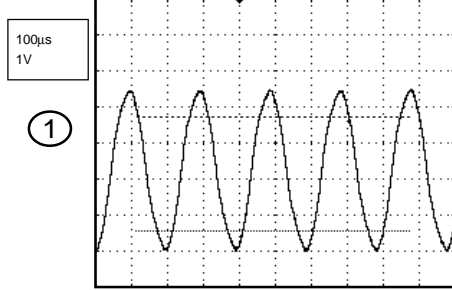
CAUTIONSINCE THESE PARTS MARKED BY  ARE  
CRITICAL FOR SAFETY,USE ONES  
DESCRIBED IN PARTS LIST ONLY.

ATTENTIONLES PIECES REPARÉES PAR UN  ÉTANT  
DANGEREUSES AN POINT DE VUE SECURITE  
N'UTILISER QUE CELLS DECRITES  
DANS LA NOMENCLATURE DES PIECES.

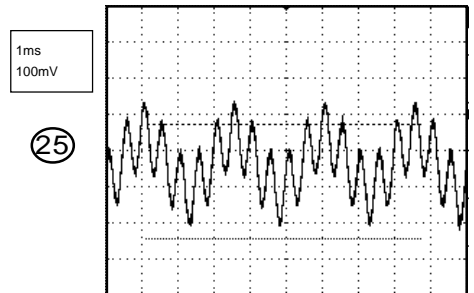
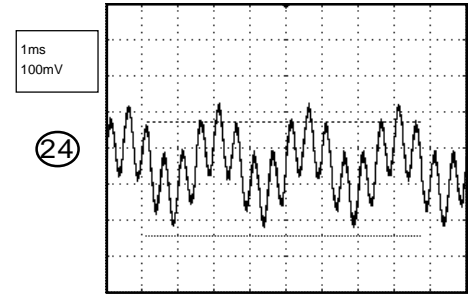
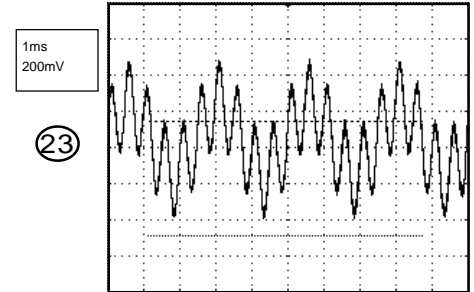
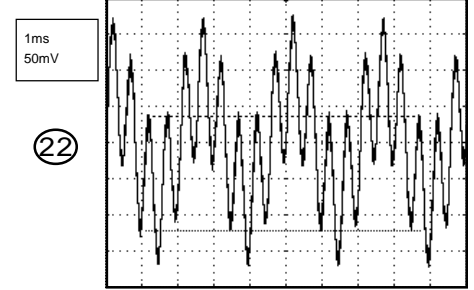
 R.SIGNAL  
 G.SIGNAL  
 B.SIGNAL

# WAVEFORMS

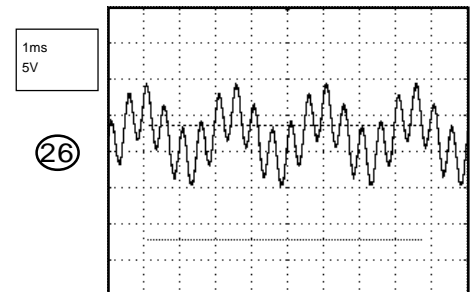
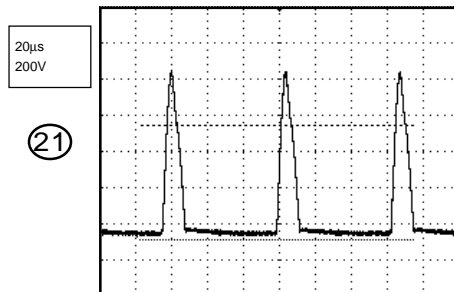
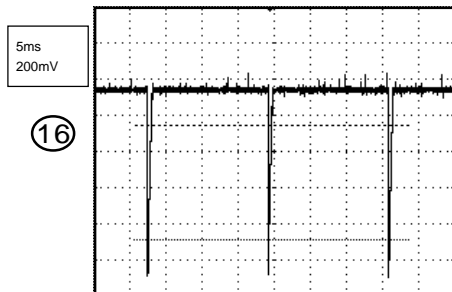
## MICON



## SOUND



## DEFRECTION

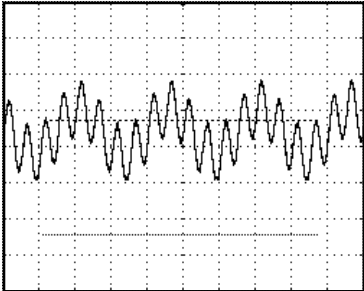


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

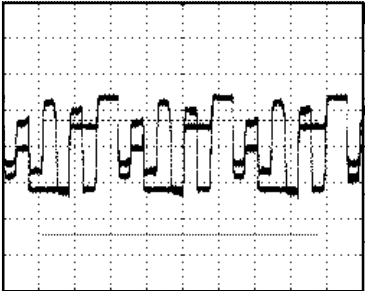
1ms  
5V

27



20μs  
50V

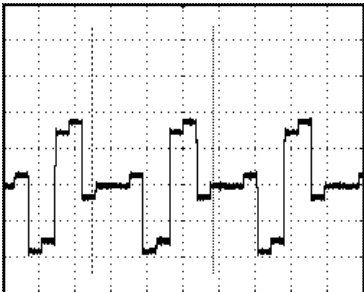
39



AV

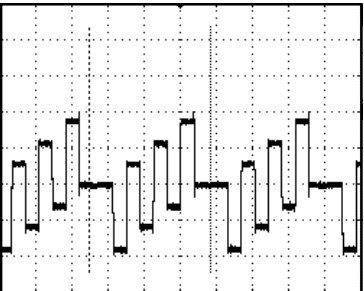
20μs  
200mV

28



20μs  
200mV

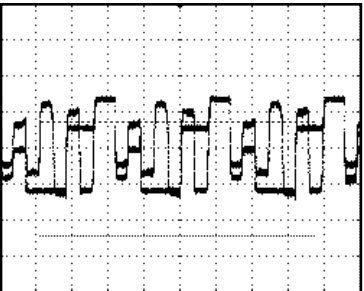
29



CRT/SVM

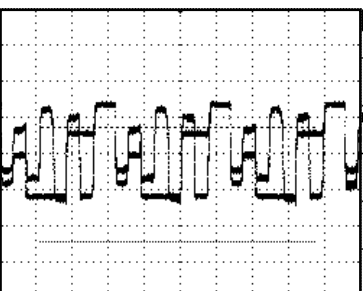
20μs  
50V

37



20μs  
50V

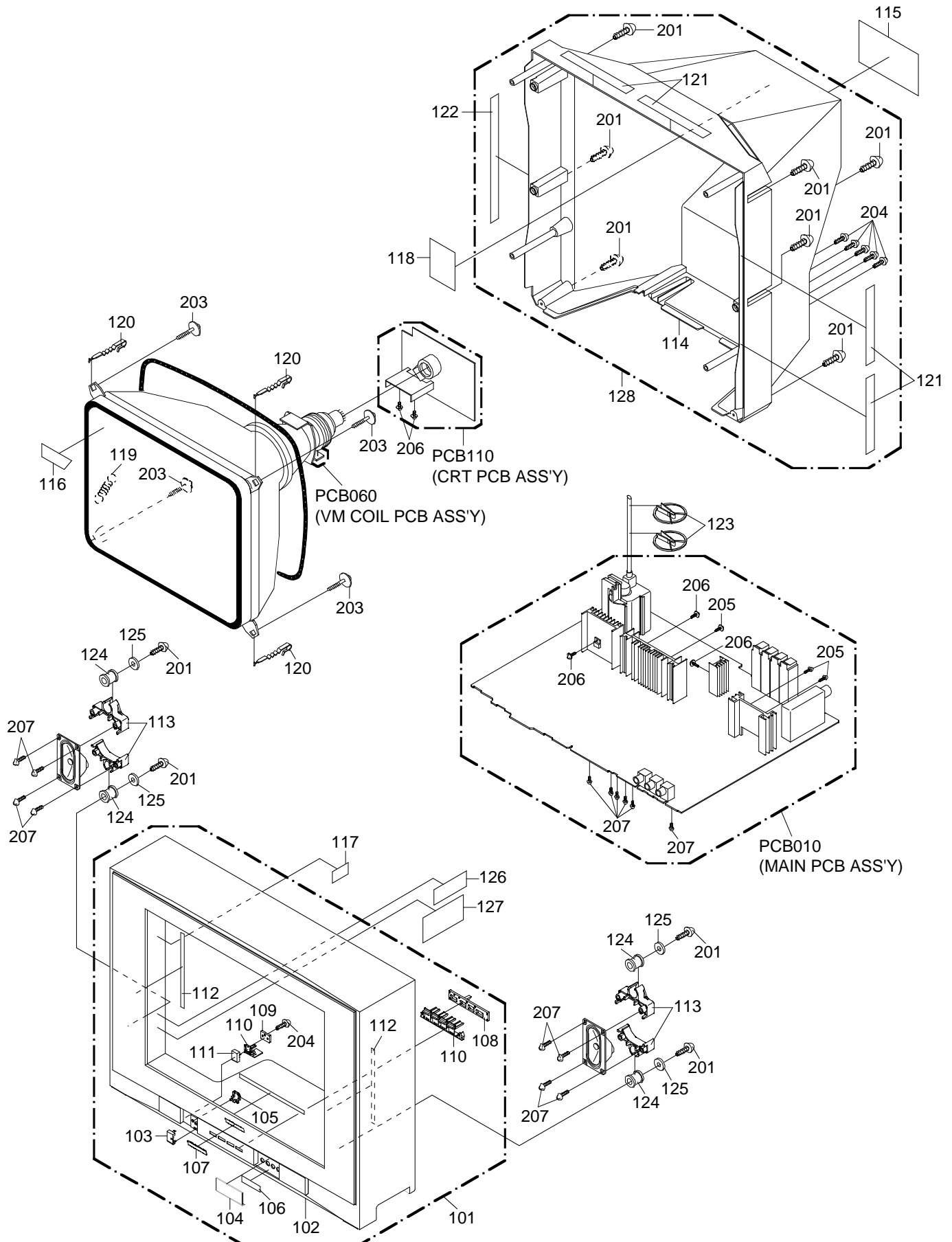
38



NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.



# MECHANICAL EXPLODED VIEW



# MECHANICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N  | Reference No. | Description                      |      |
|--------------|----------|---------------|----------------------------------|------|
| 101          | AE000424 | A3M6010720    | CABINET,FRONT ASSY               |      |
| 102          | AD302142 | 701WPJC027    | CABINET,FRONT                    |      |
| 103          | AD302143 | 711WPA0182    | PLATE,FRONT                      |      |
| 104          | AD302144 | 712WPBA042    | DOOR                             |      |
| 105          | AD302145 | 713WPA0261    | GLASS,LED                        |      |
| 106          | AD302146 | 723549A012    | AV LABEL                         |      |
| 107          | AD302008 | 7235490036    | BADGE,BRAND                      |      |
| 108          | AD302147 | 735WPA0725    | STOPPER,BUTTON                   |      |
| 109          | AD302010 | 735WPA0732    | STOPPER,BUTTON2                  |      |
| 110          | AD302011 | 735WPB0243    | BUTTON,FRAME                     |      |
| 111          | AD302148 | 735WPJA735    | BUTTON,POWER                     |      |
| 112          | AE000003 | 800WQ00045    | FELT SHEET                       |      |
| 113          | AD302015 | 761WPA0220    | HOLDER,SPEAKER                   |      |
| 114          | AD302149 | 702WPAA210    | CABINET,BACK                     |      |
| 115          | AD302150 | 722549A157    | SHEET,RATING                     |      |
| 116          | AD302151 | 723000C139    | POP LABEL                        |      |
| 117          | AD300132 | 7230006818    | SHEET,CAUTION                    |      |
| 118          | AD301133 | 726000A030    | SHEET,CRT NO.                    |      |
| 119          | BZ710258 | 741WUA0001    | SPRING,EARTH                     |      |
| 120          | BZ710259 | 762WPA0011    | HOLDER,CRT WIRE                  |      |
| 121          | AD300134 | 800WQ00039    | FELT SHEET                       |      |
| 122          | AD300520 | 800WQ00068    | FELT SHEET                       |      |
| 123          | BZ710260 | 899HV3T000    | HOLDER,ANODE WIRE                |      |
| 124          | AD300518 | 801WR00001    | DAMPER,SPEAKER                   |      |
| 125          | AD300519 | 82A40B0104    | FLAT WASHER                      |      |
| 126          | AE000007 | 7220001107    | SHEET,HWC                        |      |
| 127          | AE000006 | 7220001119    | SHEET,CSA WARNING                |      |
| 128          | AE000425 | A3M6010740    | CABINET,BACK ASSY                |      |
| 201          | BZ710035 | 8117540A64    | SCREW,TAPPING(B0) TRUSS          | 4x16 |
| 202          | BZ710019 | 8109630802    | SCREW,TAP TITE(B) BRAZIER        | 3x8  |
| 203          | AE000426 | 8141J50D04    | SCREW,TAP TITE(P) GW22           | 5x40 |
| 204          | BZ710031 | 8110630A04    | SCREW,TAP TITE(P) BRAZIER        | 3x10 |
| 205          | BZ710018 | 8107630804    | SCREW,TAP TITE(S) BRAZIER        | 3x8  |
| 206          | BZ710239 | 8109I30A04    | SCREW,TAP TITE(B) WH7            | 3x10 |
| 207          | BZ710034 | 8117140A24    | SCREW,TAPPING(B0) PAN            | 4x12 |
| ---          | AE000427 | 723000C244    | SHEET,BAR CODE                   |      |
| ---          | AD300432 | 791WHA0092    | LAMIFILM,BAG                     |      |
| ---          | AD302153 | 792WHA0438    | PACKAGE,TOP                      |      |
| ---          | AD302154 | 792WHA0439    | PACKAGE,BOTTOM                   |      |
| ---          | AD302155 | 793WCDB611    | GIFT BOX                         |      |
| ---          | AE000011 | 7230007398    | SECURITY TAG (FOR CANADA ONLY)   |      |
| ---          | AD302020 | A3M701Z975    | INSTRUCTION BOOK KIT             |      |
| ---          | AD300022 | J3I70417      | REGISTRATION CARD                |      |
| ---          | AD300023 | J3I70436      | ESP CARD                         |      |
| ---          | AE000235 | J3M70101B     | INSTRUCTION BOOK                 |      |
| ---          | AD301213 | JA4UD300      | POLYBAG,INSTRUCTION(RED CAUTION) |      |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No.      | TSB P/N  | Reference No. | Description               |
|-------------------|----------|---------------|---------------------------|
| <b>RESISTORS</b>  |          |               |                           |
| △ R410            | AD302107 | R3X18A470J    | R,METAL OXIDE 47 OHM 2W   |
| R419              | AE000415 | R3X1811R5J    | R,METAL OXIDE 1.5 OHM 1W  |
| △ R426            | BZ210030 | R4X5T4472F    | R,METAL 4.7K OHM 1/4W     |
| △ R434            | BZ210259 | R5Y2CF1R8J    | R,CEMENT 1.8 OHM 10W      |
| △ R436            | BZ210023 | R4X5T4183F    | R,METAL 18K OHM 1/4W      |
| △ R438            | AD302133 | R6358A3R3J    | R,FUSE 3.3 OHM 2W         |
| △ R439            | BZ210003 | R3K181102J    | R,METAL 1K OHM 1W         |
| △ R441            | AD300037 | R4X5T6153F    | R,METAL 15K OHM 1/6W      |
| △ R452            | AD301385 | R3X18A391J    | R,METAL OXIDE 390 OHM 2W  |
| R459              | AD301595 | R65582010J    | R,FUSE 1 OHM 1/2W         |
| △ R500            | BZ210080 | R0G3K2275K    | RC RD 2.7M OHM 1/2W       |
| △ R501            | AD301596 | R5X2AE010J    | R,CEMENT 1 OHM 7W         |
| △ R502            | AD301016 | R3X28A331J    | R,METAL OXIDE 330 OHM 2W  |
| △ R506            | BZ210162 | R002T4682J    | RC 6.8K OHM 1/4W          |
| △ R517            | BZ210191 | R3X28B010J    | R,METAL 1 OHM 3W          |
| △ R520            | BZ210206 | R002T2155J    | RC 1.5M OHM 1/2W          |
| △ R527            | BZ210149 | R3X18AR68J    | R,METAL OXIDE 0.68 OHM 2W |
| △ R541            | BZ210190 | R63581R22J    | R,FUSE 0.22 OHM 1W        |
| △ R542            | AD301017 | R3X181R15J    | R,METAL OXIDE 0.15 OHM 1W |
| △ R602            | AD301975 | R3X28B120J    | R,METAL OXIDE 12 OHM 3W   |
| △ R649            | AD301975 | R3X28B120J    | R,METAL OXIDE 12 OHM 3W   |
| △ R804            | BZ210026 | R3X18A153J    | R,METAL OXIDE 15K OHM 2W  |
| △ R806            | BZ210026 | R3X18A153J    | R,METAL OXIDE 15K OHM 2W  |
| △ R808            | BZ210026 | R3X18A153J    | R,METAL OXIDE 15K OHM 2W  |
| △ R855            | AD301019 | R65582331J    | R,FUSE 330 OHM 1/2W       |
| △ R881            | BZ210087 | R3X18A221J    | R,METAL OXIDE 220 OHM 2W  |
| <b>CAPACITORS</b> |          |               |                           |
| △ C402            | AE000416 | P232W1103J    | CMP 0.01 UF 100V MMTS     |
| C408              | BZ110032 | E5EZF3102M    | CE 1000 UF 25V            |
| C412              | AD301303 | P4N8FJ332H    | CMPP 0.0033UF 1.25KV      |
| C413              | AD301977 | E0ELF4102M    | CE 1000 UF 35V            |
| C418              | BZ210173 | P4J7F3474J    | CMPP 0.47 UF 250V PMS     |
| △ C420            | AD300723 | P4N8FJ153H    | CMPP 0.015 UF 1.25KV      |
| C421              | AD301600 | P3N1F5223J    | CPP 0.022 UF 630V         |
| C425              | BZ110182 | C03L0R713K    | CC 0.001 UF 2KV R         |
| C426              | AD300061 | E5EZF220M     | CE 22 UF 250V             |
| △ C430            | BZ110195 | E02LU8220M    | CE 22 UF 100V             |
| C442              | AD301601 | E53FF56R8M    | CE 6.8 UF 50V NP          |
| C501              | BZ210176 | E02LF3222M    | CE 2200 UF 25V            |
| C502              | BZ110182 | C03L0R713K    | CC 0.001 UF 2KV R         |
| C503              | BZ110182 | C03L0R713K    | CC 0.001 UF 2KV R         |
| △ C505            | BZ110025 | P2122B224M    | CMP 0.22 UF 275V ECQUL    |
| △ C506            | BZ110035 | P2122B104M    | CMP 0.1 UF 275V ECQUL     |
| C507              | AE000417 | E51DFC821M    | CE 820 UF 200V            |
| △ C508            | AD301108 | CD39E0MH3M    | CC 0.0022UF 250V          |
| △ C513            | AD301026 | CD39E0M13M    | CC 0.001 UF 250V          |
| C517              | BZ110191 | C03L0R7E3K    | CC 0.0015UF 2KV R         |
| △ C519            | AD301026 | CD39E0M13M    | CC 0.001 UF 250V          |
| C521              | AD301025 | E62NFB221M    | CE 220 UF 160V            |
| C527              | BZ110119 | E02LF2222M    | CE 2200 UF 16V            |
| C535              | BZ110182 | C03L0R713K    | CC 0.001 UF 2KV R         |
| C808              | BZ110226 | C0JBB07H3K    | CC 0.0022UF 2KV B         |
| △ C855            | AE000418 | CQGTCH4S2J    | CC 560 PF 50V CH          |
| C1003             | BZ210176 | E02LF3222M    | CE 2200 UF 25V            |
| C1004             | BZ110053 | E02LF3102M    | CE 1000 UF 25V            |
| C1009             | BZ110053 | E02LF3102M    | CE 1000 UF 25V            |
| <b>DIODES</b>     |          |               |                           |
| D001              | BZ410037 | D97U03301B    | DIODE,ZENER MTZJ33B T-77  |
| D104              | BZ410006 | D1VT001330    | DIODE,SILICON 1SS133T-77  |
| D105              | BZ410006 | D1VT001330    | DIODE,SILICON 1SS133T-77  |
| D106              | BZ410020 | D97U05R11B    | DIODE,ZENER MTZJ5.1B T-77 |
| D107              | BZ410006 | D1VT001330    | DIODE,SILICON 1SS133T-77  |
| D108              | BZ410006 | D1VT001330    | DIODE,SILICON 1SS133T-77  |
| D109              | BZ410054 | 0021721150    | LED SLR-342VCT32          |
| D110              | BZ410006 | D1VT001330    | DIODE,SILICON 1SS133T-77  |
| D113              | BZ410021 | D97U05R61B    | DIODE,ZENER MTZJ5.6B T-77 |
| D402              | BZ410043 | D2WT011E10    | DIODE,SILICON 11E1-EIC    |
| D403              | BZ410019 | D97U03001B    | DIODE,ZENER MTZJ30B T-77  |
| D404              | BZ410020 | D97U05R11B    | DIODE,ZENER MTZJ5.1B T-77 |
| D405              | BZ410063 | D2WTAU02A0    | DIODE,SILICON AU02A-EIC   |
| △ D406            | BZ410021 | D97U05R61B    | DIODE,ZENER MTZJ5.6B T-77 |
| D407              | BZ410063 | D2WTAU02A0    | DIODE,SILICON AU02A-EIC   |
| D408              | AD302110 | D2CF0715L0    | DIODE,SILICON ERD07-15L50 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No.  | TSB P/N  | Reference No. | Description       |
|---------------|----------|---------------|-------------------|
| <b>DIODES</b> |          |               |                   |
| D409          | AD301980 | D2CF2016L0    | DIODE,SILICON     |
| D410          | BZ410019 | D97U03001B    | DIODE,ZENER       |
| △D411         | BZ410063 | D2WTAU02A0    | DIODE,SILICON     |
| D414          | BZ410043 | D2WT011E10    | DIODE,SILICON     |
| D415          | BZ410043 | D2WT011E10    | DIODE,SILICON     |
| D416          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D417          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D419          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| △D501         | BZ410062 | D2WTRM11C0    | DIODE,SILICON     |
| △D502         | BZ410062 | D2WTRM11C0    | DIODE,SILICON     |
| △D503         | BZ410062 | D2WTRM11C0    | DIODE,SILICON     |
| △D504         | BZ410062 | D2WTRM11C0    | DIODE,SILICON     |
| D505          | AD300076 | D28F30DF60    | DIODE,RECTIFIER   |
| D506          | AD300731 | D2WXN49370    | DIODE,SILICON     |
| D507          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D508          | BZ410064 | D97U03R91B    | DIODE,ZENER       |
| D509          | AD300671 | D97U01801B    | DIODE,ZENER       |
| D510          | AD301980 | D2CF2016L0    | DIODE,SILICON     |
| D511          | AD300731 | D2WXN49370    | DIODE,SILICON     |
| D512          | BZ410010 | D28T21DQN9    | DIODE,SCHOTTKY    |
| D513          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D514          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D516          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D517          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D520          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D523          | AD300671 | D97U01801B    | DIODE,ZENER       |
| D524          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D525          | AD300671 | D97U01801B    | DIODE,ZENER       |
| D528          | BZ410021 | D97U05R61B    | DIODE,ZENER       |
| D601          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D602          | BZ410058 | D97U08R21B    | DIODE,ZENER       |
| D603          | AD300670 | D97U01501B    | DIODE,ZENER       |
| D604          | AD300070 | D97U01201B    | DIODE,ZENER       |
| D605          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D606          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D607          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D608          | BZ410043 | D2WT011E10    | DIODE,SILICON     |
| D701          | AD300070 | D97U01201B    | DIODE,ZENER       |
| D702          | AD300070 | D97U01201B    | DIODE,ZENER       |
| D703          | AD300070 | D97U01201B    | DIODE,ZENER       |
| D704          | AD300070 | D97U01201B    | DIODE,ZENER       |
| D705          | AD300070 | D97U01201B    | DIODE,ZENER       |
| D706          | AD300070 | D97U01201B    | DIODE,ZENER       |
| D709          | BZ410066 | D97U06R21B    | DIODE,ZENER       |
| D801          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D802          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D803          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D804          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D805          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D806          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D807          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D808          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D809          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D852          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D853          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D854          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D855          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D856          | BZ410006 | D1VT001330    | DIODE,SILICON     |
| D857          | BZ410011 | D28TELS2N2    | DIODE,RECTIFIER   |
| D858          | BZ410011 | D28TELS2N2    | DIODE,RECTIFIER   |
| <b>ICS</b>    |          |               |                   |
| IC101         | AD301981 | I56F07090A    | IC                |
| IC199         | AD302135 | A3M6012015    | IC                |
| IC301         | AD300055 | I0QF021500    | IC                |
| IC302         | AD301983 | I01FF58910    | IC                |
| IC401         | AD300414 | I03TD80410    | IC                |
| △IC504        | BZ410088 | 0002E00610    | PHOTO COUPLER     |
| IC601         | AD301984 | I06FC12830    | IC                |
| IC701         | AD301988 | I0UF015010    | IC                |
| IC702         | AD301988 | I0UF015010    | IC                |
| IC902         | AD300059 | I01FF58290    | IC                |
| IC1001        | AD300056 | I0FSP52760    | IC                |
| IC1501        | AD301029 | I03FE76600    | IC                |
|               |          |               | FE201-6L49        |
|               |          |               | MTZJ30B T-77      |
|               |          |               | AU02A-EIC         |
|               |          |               | 11E1-EIC          |
|               |          |               | 11E1-EIC          |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | RM11C-EIC         |
|               |          |               | RM11C-EIC         |
|               |          |               | RM11C-EIC         |
|               |          |               | RM11C-EIC         |
|               |          |               | 30DF6-FC          |
|               |          |               | 1N4937            |
|               |          |               | 1SS133T-77        |
|               |          |               | MTZJ3.9B T-77     |
|               |          |               | MTZJ18B T-77      |
|               |          |               | FE201-6L49        |
|               |          |               | 1N4937            |
|               |          |               | 21DQ09N-TA2B1     |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | MTZJ18B T-77      |
|               |          |               | 1SS133T-77        |
|               |          |               | MTZJ18B T-77      |
|               |          |               | MTZJ5.6B T-77     |
|               |          |               | 1SS133T-77        |
|               |          |               | MTZJ8.2B T-77     |
|               |          |               | MTZJ15B T-77      |
|               |          |               | MTZJ12B T-77      |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 11E1-EIC          |
|               |          |               | MTZJ12B T-77      |
|               |          |               | MTZJ12B T-77      |
|               |          |               | MTZJ12B T-77      |
|               |          |               | MTZJ12B T-77      |
|               |          |               | MTZJ12B T-77      |
|               |          |               | MTZJ12B T-77      |
|               |          |               | MTZJ6.2B T-77     |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 1SS133T-77        |
|               |          |               | 10ELS2N-TA1B2     |
|               |          |               | 10ELS2N-TA1B2     |
|               |          |               | OEC7090A          |
|               |          |               | S-24C16AFJA-TB-01 |
|               |          |               | NJM2150AM         |
|               |          |               | AN5891SA-E1V      |
|               |          |               | LA78041           |
|               |          |               | LTV-817M-VB       |
|               |          |               | M61283FP          |
|               |          |               | MM1501XNRE        |
|               |          |               | MM1501XNRE        |
|               |          |               | AN5829S           |
|               |          |               | AN5276            |
|               |          |               | LA76600M-TLM      |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No.                    | TSB P/N  | Reference No. | Description         |
|---------------------------------|----------|---------------|---------------------|
| <b>ICS</b>                      |          |               |                     |
| IC1502                          | AD301988 | I0UF015010    | IC                  |
| IC1503                          | AD301988 | I0UF015010    | IC                  |
| <b>TRANSISTORS</b>              |          |               |                     |
| Q101                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q103                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q402                            | BZ510097 | TCAT03227Y    | TRANSISTOR,SILICON  |
| Q405                            | AD302136 | TD50026380    | TRANSISTOR,SILICON  |
| Q408                            | BZ510073 | TAATA12660    | TRANSISTOR,SILICON  |
| Q409                            | BZ510073 | TAATA12660    | TRANSISTOR,SILICON  |
| Q410                            | AD300027 | TC30041590    | TRANSISTOR,SILICON  |
| Q411                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q502                            | BZ510098 | T220033260    | FET                 |
| Q503                            | BZ510005 | TA3T1371A0    | TRANSISTOR,SILICON  |
| Q504                            | BZ510069 | TCATC31980    | TRANSISTOR,SILICON  |
| Q505                            | BZ510011 | TC3T029090    | TRANSISTOR,SILICON  |
| Q507                            | BZ510069 | TCATC31980    | TRANSISTOR,SILICON  |
| Q508                            | BZ510077 | TAAT012714    | TRANSISTOR,SILICON  |
| Q509                            | BZ510069 | TCATC31980    | TRANSISTOR,SILICON  |
| Q512                            | BZ510004 | TA3T016240    | TRANSISTOR,SILICON  |
| Q514                            | BZ510070 | TCAT032034    | TRANSISTOR,SILICON  |
| Q601                            | BZ510105 | TCAT03209Y    | TRANSISTOR,SILICON  |
| Q602                            | BZ510105 | TCAT03209Y    | TRANSISTOR,SILICON  |
| Q603                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q604                            | BZ510105 | TCAT03209Y    | TRANSISTOR,SILICON  |
| Q605                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q606                            | BZ510105 | TCAT03209Y    | TRANSISTOR,SILICON  |
| Q607                            | BZ510070 | TCAT032034    | TRANSISTOR,SILICON  |
| Q610                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q611                            | BZ510105 | TCAT03209Y    | TRANSISTOR,SILICON  |
| Q613                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q614                            | BZ510108 | TAAA1504SY    | TRANSISTOR,SILICON  |
| Q709                            | BZ510108 | TAAA1504SY    | TRANSISTOR,SILICON  |
| Q711                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q712                            | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| △Q801                           | BZ510091 | TCA0042170    | TRANSISTOR,SILICON  |
| △Q802                           | BZ510091 | TCA0042170    | TRANSISTOR,SILICON  |
| △Q803                           | BZ510091 | TCA0042170    | TRANSISTOR,SILICON  |
| △Q810                           | AD301032 | TCATC3199Y    | TRANSISTOR,SILICON  |
| △Q811                           | AD301032 | TCATC3199Y    | TRANSISTOR,SILICON  |
| △Q812                           | AD301032 | TCATC3199Y    | TRANSISTOR,SILICON  |
| Q852                            | BZ510069 | TCATC31980    | TRANSISTOR,SILICON  |
| Q853                            | AD300024 | TCUT00752Y    | TRANSISTOR,SILICON  |
| Q854                            | BZ510069 | TCATC31980    | TRANSISTOR,SILICON  |
| Q855                            | BZ510069 | TCATC31980    | TRANSISTOR,SILICON  |
| Q856                            | BZ510069 | TCATC31980    | TRANSISTOR,SILICON  |
| Q857                            | BZ510073 | TAATA12660    | TRANSISTOR,SILICON  |
| Q858                            | AD300029 | TAU0018370    | TRANSISTOR,SILICON  |
| Q859                            | AD300025 | TCU0047930    | TRANSISTOR,SILICON  |
| Q901                            | BZ510108 | TAAA1504SY    | TRANSISTOR,SILICON  |
| Q902                            | BZ510108 | TAAA1504SY    | TRANSISTOR,SILICON  |
| Q1001                           | BZ510068 | TNAAJ05003    | COMPOUND TRANSISTOR |
| Q1503                           | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q1504                           | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q1507                           | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| Q1508                           | BZ510109 | TCAA3875SY    | TRANSISTOR,SILICON  |
| <b>COILS &amp; TRANSFORMERS</b> |          |               |                     |
| L301                            | BZ310041 | 02167F101J    | COIL                |
| L402                            | AD300400 | 022100034A    | COIL,LINEARITY      |
| L403                            | AD301606 | 02DK000058    | COIL,CHOKE          |
| △L501                           | AD301124 | 029T000101    | COIL,LINE FILTER    |
| △L503                           | AD300401 | 028R250009    | COIL,DEGAUSS        |
| L601                            | AD301989 | 0216A6330J    | COIL                |
| L802                            | AD300123 | 021673151K    | COIL                |
| L803                            | AD300123 | 021673151K    | COIL                |
| L804                            | AD300123 | 021673151K    | COIL                |
| L901                            | BZ310041 | 02167F101J    | COIL                |
| L1501                           | BZ310041 | 02167F101J    | COIL                |
| L1502                           | AD301417 | 02167F221J    | COIL                |
| L1503                           | AD301417 | 02167F221J    | COIL                |
| L1505                           | AD300613 | 02167F150J    | COIL                |
| L1508                           | BZ310041 | 02167F101J    | COIL                |
| L1510                           | AD300613 | 02167F150J    | COIL                |
| L1511                           | AD300613 | 02167F150J    | COIL                |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No.                    | TSB P/N  | Reference No. | Description                          |
|---------------------------------|----------|---------------|--------------------------------------|
| <b>COILS &amp; TRANSFORMERS</b> |          |               |                                      |
| L1512                           | AD301608 | 0216A6220J    | COIL 22 UH                           |
| T401                            | AD301125 | 0450190161    | TRANS,HORIZONTAL DRIVE ETH19Y203AY   |
| △T501                           | AD301034 | 048140066S    | TRANSFORMER,SWITCHING 8140066S       |
| <b>JACKS</b>                    |          |               |                                      |
| J701                            | AD301038 | 060J431019    | RCA JACK MSP-213V2-432 PBSN          |
| J702                            | AD300108 | 063Q700002    | JACK YKF51-5503                      |
| J703                            | AD301038 | 060J431019    | RCA JACK MSP-213V2-432 PBSN          |
| J704                            | AD301037 | 060J411024    | RCA JACK MSP-213V1-652 PBSN          |
| J705                            | AD300110 | 060G401047    | RCA JACK HTJ-032-03AY                |
| J706                            | AD300111 | 060G401046    | RCA JACK HTJ-032-03AW                |
| J707                            | AD300112 | 060G401039    | RCA JACK HTJ-032-03AR                |
| J708                            | AD301038 | 060J431019    | RCA JACK MSP-213V2-432 PBSN          |
| △J801                           | BZ614115 | 066C130017    | SOCKET,CATHODE RAY TUBE CVT3275-5101 |
| J1001                           | BZ614361 | 060J131015    | HEADPHONE JACK MSJ-2000              |
| <b>SWITCHES</b>                 |          |               |                                      |
| SW101                           | BZ612010 | 0504101T34    | SWITCH,TACT EVQ21505R                |
| SW102                           | BZ612010 | 0504101T34    | SWITCH,TACT EVQ21505R                |
| SW103                           | BZ612010 | 0504101T34    | SWITCH,TACT EVQ21505R                |
| SW104                           | BZ612010 | 0504101T34    | SWITCH,TACT EVQ21505R                |
| SW105                           | BZ612010 | 0504101T34    | SWITCH,TACT EVQ21505R                |
| <b>VARIABLE RESISTORS</b>       |          |               |                                      |
| VR401                           | BZ210218 | V1K63H3BTE    | VOLUME,SEMI FIXED NVG6TLTAB222       |
| VR502                           | BZ210101 | V1163H4BTC    | VOLUME,SEMI FIXED EVNCYAA03BE4       |
| <b>P.C.BOARD ASSEMBLIES</b>     |          |               |                                      |
| PCB010                          | AE000420 | A3M6010010    | PCB ASS'Y TMC559B                    |
| PCB060                          | AE000421 | A3M6010060    | PCB ASS'Y TEAA93B                    |
| PCB110                          | AE000422 | A3M6010110    | PCB ASS'Y TCA391B                    |
| <b>MISCELLANEOUS</b>            |          |               |                                      |
| B401                            | BZ310129 | 024HT03564    | CORE,BEADS W4BRH3.5X6X1.0            |
| B402                            | BZ310129 | 024HT03564    | CORE,BEADS W4BRH3.5X6X1.0            |
| B405                            | BZ310129 | 024HT03564    | CORE,BEADS W4BRH3.5X6X1.0            |
| B501                            | BZ310045 | 024AT03481    | CORE,BEADS BL02RN1-R62T2             |
| B504                            | BZ310121 | 024HT03553    | CORE,BEADS W5RH3.5X5X1.0             |
| B851                            | BZ310121 | 024HT03553    | CORE,BEADS W5RH3.5X5X1.0             |
| B852                            | BZ310121 | 024HT03553    | CORE,BEADS W5RH3.5X5X1.0             |
| B853                            | BZ310121 | 024HT03553    | CORE,BEADS W5RH3.5X5X1.0             |
| BT001                           | AE000012 | 1412004008    | BATTERY,MANGAN R03(AB)E_2P_G         |
| BT002                           | AE000012 | 1412004008    | BATTERY,MANGAN R03(AB)E_2P_G         |
| △CD501                          | AD300746 | 120R615901    | CORD,AC BUSH 0R615901                |
| CD801                           | AD301042 | 06CU253401    | CORD,CONNECTOR CU253401              |
| CD802                           | AE000423 | 06CU274501    | CORD,CONNECTOR CU274501              |
| CD803                           | AD300094 | 06CP83035A    | CORD,CONNECTOR CP83035A              |
| CD851                           | AD302371 | 06CU244701    | CORD,CONNECTOR CU244701              |
| CD852                           | AD301043 | 06CU232001    | CORD,CONNECTOR CU232001              |
| CP101                           | BZ614102 | 0694270139    | CONNECTOR PCB SIDE 173979-7          |
| CP401                           | AD300095 | 069X460029    | CONNECTOR PCB SIDE B06B-DVS          |
| CP501                           | BZ614176 | 069S320419    | CONNECTOR PCB SIDE A3963WV2-3PD      |
| CP502                           | AD300687 | 069S420110    | CONNECTOR PCB SIDE A1561WV2-2P       |
| CP507                           | BZ614444 | 069D01001A    | CONNECTOR PCB SIDE 003P-2100         |
| CP508                           | BZ614444 | 069D01001A    | CONNECTOR PCB SIDE 003P-2100         |
| CP803                           | AD301996 | 069S330010    | CONNECTOR PCB SIDE A2361WV2-3P       |
| CP804                           | BZ614058 | 069W010010    | CONNECTOR PCB SIDE 005P-2100         |
| CP852                           | BZ614350 | 069S230629    | CONNECTOR PCB SIDE A2001WV2-3P       |
| CD1001                          | AD300093 | 06CU14411A    | CORD,CONNECTOR CU14411A              |
| CP1001                          | AD301045 | 069S140419    | CONNECTOR PCB SIDE A2502WV2-4P       |
| CP801A                          | BZ614276 | 067U005049    | WIRE HOLDER B2013H02-5P              |
| CP801B                          | AD300752 | 069S250629    | CONNECTOR PCB SIDE A2001WV2-5P       |
| CP802A                          | AD301997 | 067U007029    | WIRE HOLDER B2013H02-7P              |
| CP802B                          | BZ614485 | 069S270629    | CONNECTOR PCB SIDE A2001WV2-7P       |
| CP851A                          | BZ614334 | 067U004029    | WIRE HOLDER B2013H02-4P              |
| CP851B                          | AD301998 | 069S240629    | CONNECTOR PCB SIDE A2001WV2-4P       |
| CP852B                          | BZ614349 | 067U003029    | WIRE HOLDER B2013H02-3P              |
| EL001                           | BZ614044 | 124120301A    | EYE LET XRY20X30BD                   |
| EL002                           | BZ614043 | 124116281A    | EYE LET XRY16X28BD                   |
| △F501                           | AD301046 | 081PC6R305    | FUSE 51MS063L                        |
| △FB401                          | AD302140 | 043224005F    | TRANSFORMER,FLYBACK FSU24A001        |
| FH501                           | BZ614005 | 06710T0006    | HOLDER,FUSE EYF-52BC                 |
| FH502                           | BZ614005 | 06710T0006    | HOLDER,FUSE EYF-52BC                 |
| OS101                           | AD301048 | 0773071001    | REMOTE RECEIVER RPM7138-H5           |
| △RY501                          | AD300114 | 0560V20115    | RELAY ALKS321                        |
| SP1001                          | AD301050 | 070C457003    | SPEAKER SG05K07BRA                   |
| SP1002                          | AD301050 | 070C457003    | SPEAKER SG05K07BRA                   |
| △TH501                          | BZ410079 | DF5EL3R0A0    | DEGAUSS ELEMENT ZPB45BL3R0A          |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No.  | TSB P/N  | Reference No. |             | Description     |
|---------------|----------|---------------|-------------|-----------------|
| MISCELLANEOUS |          |               |             |                 |
| TM101         | AD302001 | 076R0GF010    | TRANSMITTER | R25-1911        |
| △TU001        | AE000273 | 0163300005    | RF UNIT     | 115-V-K015AR B  |
| △V801         | AD301131 | 098W250401    | CRT W/DY    | A60LVY196X11(O) |
| X101          | AD302002 | 100CT8R005    | CRYSTAL     | HC-49/U-S       |
| X602          | AD302003 | 100CT3R505    | CRYSTAL     | HC-49/C         |

## RESISTOR

RC..... CARBON RESISTOR

## CAPACITORS

CC..... CERAMIC CAPACITOR  
CE..... ALUMI ELECTROLYTIC CAPACITOR  
CP..... POLYESTER CAPACITOR  
CPP..... POLYPROPYLENE CAPACITOR  
CPL..... PLASTIC CAPACITOR  
CMP..... METAL POLYESTER CAPACITOR  
CMPL..... METAL PLASTIC CAPACITOR  
CMPP..... METAL POLYPROPYLENE CAPACITOR

# **TOSHIBA CORPORATION**

1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN